

# KV-27V55/29V55M

RM-Y119

## SERVICE MANUAL

US Model

KV-27V55

Chassis No. SCC-F84H-A

Canadian Model

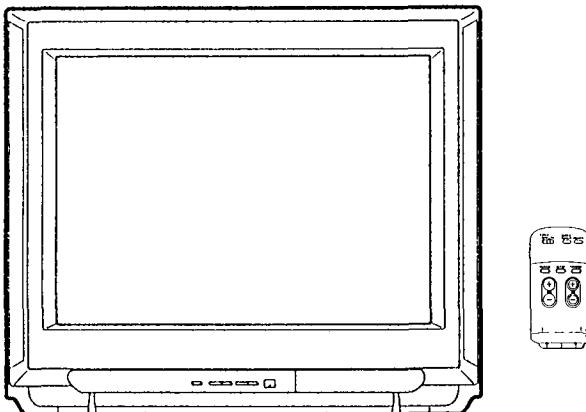
KV-27V55

Chassis No. SCC-F85E-A

E Model

KV-29V55M

Chassis No. SCC-F89D-A



**AA-1 CHASSIS**

MODELS OF THE SAME SERIES	
KV-27V55/29V55M	KV-27TS29/27TS32/27TS36
KV-27TW77/27TW78	KV-32TS36/32TS46
KV-32TW77/32TW78	KV-2970RS/2970M/2975M

### SPECIFICATIONS

Television system	American TV standards	Output	AUDIO OUT (phono jacks) More than 900 mVrms at the maximum volume setting (variable)
Channel coverage	VHF 2-13 UHF 14-69 Cable TV: 1-125		More than 500 mVrms (fix) Impedances: 5 kilohms
Picture tube	Hi-Black Trinitron® tube 27-inch picture measured diagonally 29-inch picture tube measured diagonally (KV-27V55/29V55M)	Speaker output	15 W × 2
Antenna	75-ohm external antenna terminal for VHF/UHF	Power requirements	120 V AC, 60 Hz
Input	VIDEO and S VIDEO S VIDEO IN (S terminal) Y: 1 Vp-p, 75-ohms unbalanced, sync negative C: 0.286 Vp-p (Burst signal), 75-ohms Video (phono jacks): 1 Vp-p, 75-ohms unbalanced, sync negative Audio (phono jacks): 500 mVrms (100% modulation) Impedance: 47 kilohms	Power consumption	KV-27V55 KV-29V55M 210 W (standby mode: 5W)

— Continued on next page —

**TRINITRON® COLOR TV**  
**SONY®**



#### Dimensions/Mass

	Dimensions (w/h/d)	Mass
KV-27V55	711.2 x 572 x 525.2 mm (28 x 22 <sup>5</sup> / <sub>8</sub> x 20 <sup>3</sup> / <sub>4</sub> in.)	52 kg (114 lbs 11 oz)
KV-29V55M	711.2 x 572 x 525.2 mm (28 x 22 <sup>5</sup> / <sub>8</sub> x 20 <sup>3</sup> / <sub>4</sub> in.)	47 kg (103 lbs 10 oz)

#### Supplied accessories

Remote Commander RM-Y119 (1) with  
1 size AA (R6) EVEREADY battery

#### Recommended accessories

U/V mixer EAC-66  
Connecting cable  
VMC-810S/820S, VMC-720M,  
YC-15V/30V, RK-74A

Design and specifications are subject to change without  
notice.

#### (CAUTION)

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE  
ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON  
PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

#### WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY  
SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF  
LIVE CHASSIS.

THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO  
THE AC POWER LINE.

#### SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK  $\Delta$  ON THE  
SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS  
LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE  
COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS  
APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS  
PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE  
CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL.  
FOLLOW THESE PROCEDURES WHENEVER CRITICAL  
COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS  
SUSPECTED.

#### (ATTENTION)

APRES AVOIR DECONNECTE LE CAP DE L'ANODE,  
COURTCIRCUITER L'ANODE DU TUBE CATHODIQUE ET  
CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE  
L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE  
TUBE CATHODIQUE OU AU BLINDAGE DU TUBE  
CATHODIQUE.

#### ATTENTION!!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION  
PROVENANT D'UN CHASSIS SOUS TENSION, UN  
TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISE  
LORS DE TOUT DEPANNAGE.

LE CHASSIS DE CE RECEPTEUR EST DIRECTEMENT  
RACCORDE A L'ALIMENTATION SECTEUR.

#### ATTENTION AUX COMPOSANTS RELATIFS A LA SECURITE!!

LES COMPOSANTS IDENTIFIES PAR UNE TRAME ET PAR  
UNE MARQUE  $\Delta$  SUR LES SCHEMAS DE PRINCIPE, LES  
VUES EXPLOSEES ET LES LISTES DE PIECES SONT D'UNE  
IMPORTANCE CRITIQUE POUR LA SECURITE DU  
FONCTIONNEMENT. NE LES remplacer que par des  
COMPOSANTS SONY dont le numero de piece est  
INDIQUE DANS LE PRESENT MANUEL OU DANS DES  
SUPPLEMENTS PUBLIES PAR SONY. LES REGLAGES DE  
CIRCUIT dont l'importance est critique pour la  
SECURITE DU FONCTIONNEMENT SONT IDENTIFIES DANS  
LE PRESENT MANUEL. SUIVRE CES PROCEDURES LORS  
DE CHAQUE REMPLACEMENT DE COMPOSANTS  
CRITIQUES, OU LORSQU'UN MAUVAIS FONCTIONNEMENT  
EST SUSPECTE.

## SAFETY CHECK-OUT (US Model Only)

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the condition of the monopole antenna (if any).  
Make sure the end is not broken off, and has the plastic cap on it. Point out the danger of impalement on a broken antenna to the customer, and recommend the antenna's replacement.
8. Check the B+ and HV to see they are at the values specified. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
9. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

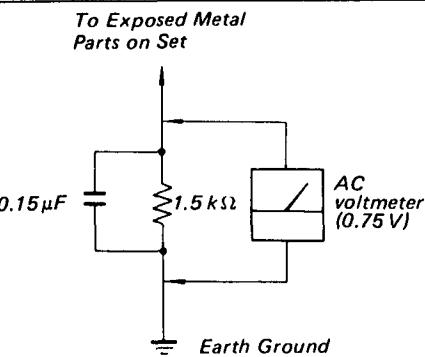


Fig. A. Using an AC voltmeter to check AC leakage.

### LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

### HOW TO FIND A GOOD EARTH GROUND

A cold-water pipe is guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth-ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60-100 watts trouble light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side of the line, the lamp should light at normal brilliance if the screw is at ground potential. (See Fig. B)

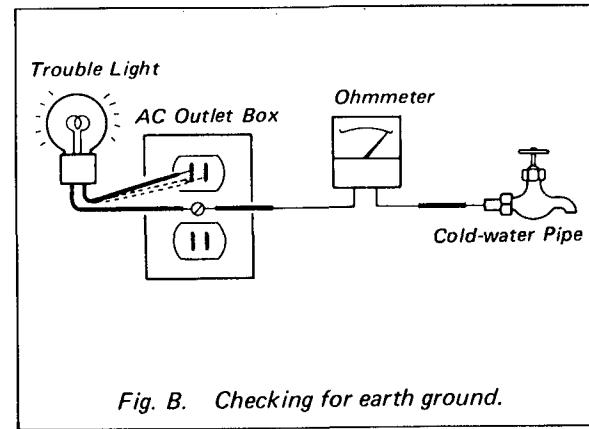


Fig. B. Checking for earth ground.

**TABLE OF CONTENTS**

<u>Section</u>	<u>Title</u>	<u>Page</u>	<u>Section</u>	<u>Title</u>	<u>Page</u>
<b>1. GENERAL</b>					
1-1.	Locating the Controls	5			
1-2.	Using the On-Screen Menus	7			
1-3.	Turning the Cable Mode On or Off	8			
1-4.	Presetting TV Channels	9			
1-5.	Connecting Other Equipment	11			
1-6.	Watching TV Programs	14			
1-7.	Using Convenient Features	14			
1-8.	Using Closed Caption (except for KV-29V55M)	15			
1-9.	Watching Two Pictures at Once (Picture-in-Picture)	15			
1-10.	Using the Timer-Activated Functions	18			
1-11.	Customizing the Screen Display	21			
1-12.	Using the Pre-Programmed Remote Commander	24			
<b>2. DISASSEMBLY</b>					
2-1.	Rear Cover Removal	26			
2-2.	Speaker Removal	26			
2-3.	Chassis Assy Removal	26			
2-4.	Service Position	27			
2-5.	P Board and P Bracket Removal	27			
2-6.	UA Board Removal	28			
2-7.	Extension Cable	28			
2-8.	Picture Tube Removal	29			
2-9.	Repair of Chip Component Circuit Board	30			
<b>3. SET-UP ADJUSTMENTS</b>					
3-1.	Beam Landing	35			
3-2.	Convergence	36			
3-3.	Focus Adjustment	38			
3-4.	G2 (Screen) and White Balance Adjustments	38			
<b>4. SAFETY RELATED ADJUSTMENTS</b> ..... 39					
<b>5. CIRCUIT ADJUSTMENTS</b>					
5-1.	Electrical Adjustment by Remote Commander	41			
5-2.	M Board Adjustments	43			
5-3.	P Board Adjustments	45			
<b>6. DIAGRAMS</b>					
6-1.	Block Diagrams	47			
6-2.	Frame Schematic Diagram	57			
6-3.	Circuit Boards Location	60			
6-4.	Schematic Diagrams and Printed Wiring Boards				
(1)	Schematic Diagram of D Board	61			
(2)	Schematic Diagram of A, C and H Boards	69			
(3)	Schematic Diagram of UA Board	73			
(4)	Schematic Diagram of P Board	83			
(5)	Schematic Diagram of M Board	87			
6-5.	Semiconductors	94			
<b>7. EXPLODED VIEWS</b>					
7-1.	Chassis	95			
7-2.	Picture Tube	96			
<b>8. ELECTRICAL PARTS LIST</b> ..... 97					

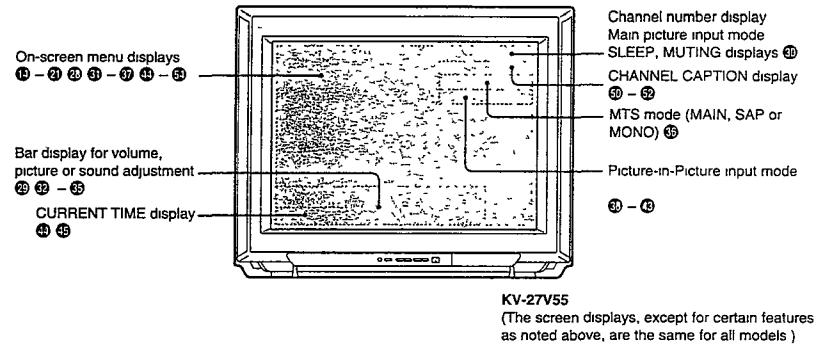
## SECTION 1 GENERAL

The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remain as in the manual.

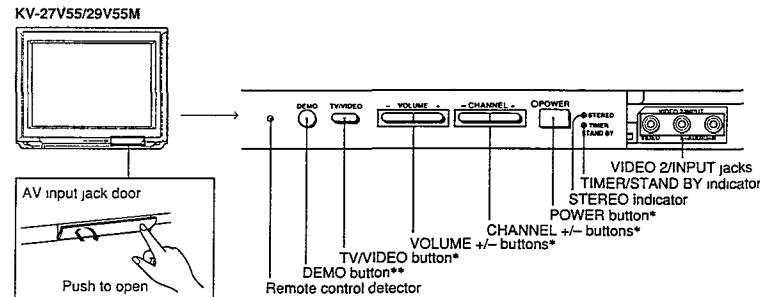
### 1-1. LOCATING THE CONTROLS

#### Screen Displays

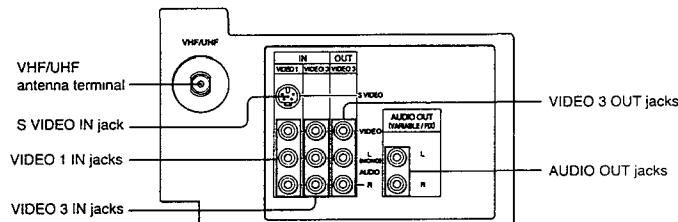
For details, see the pages indicated by the numbered black circles ●



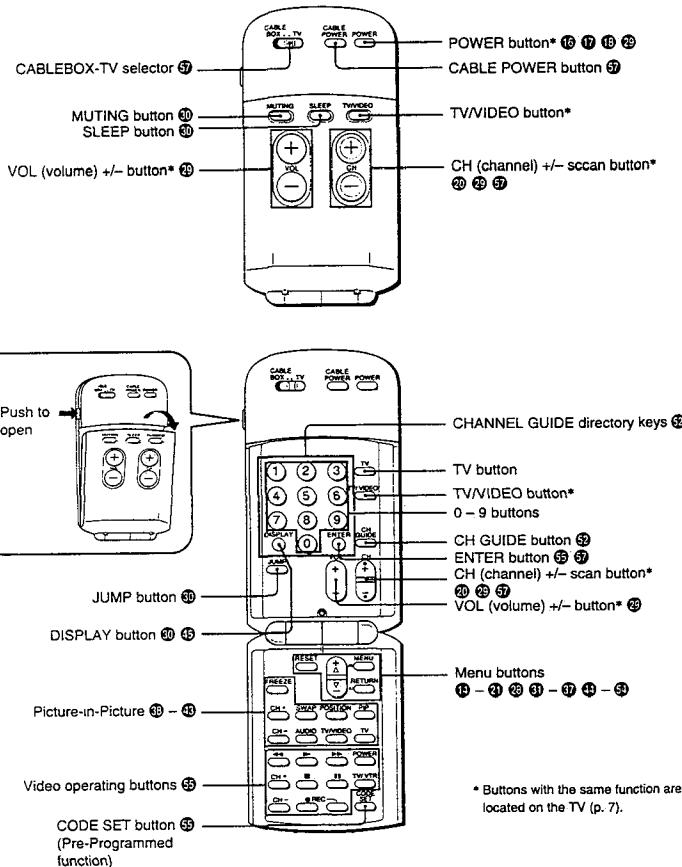
#### Front Panel



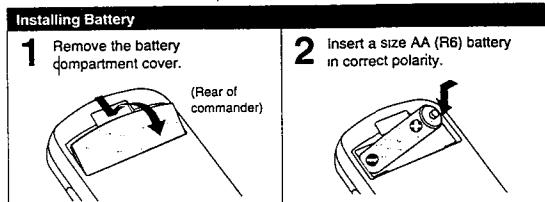
## Rear Panel



## RM-Y119



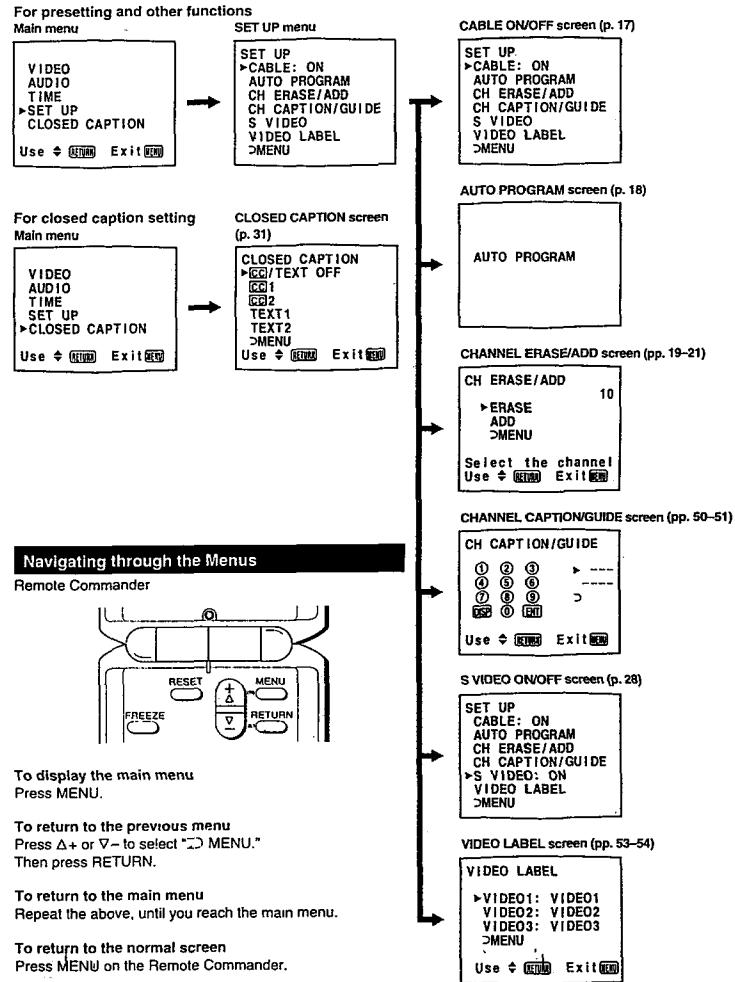
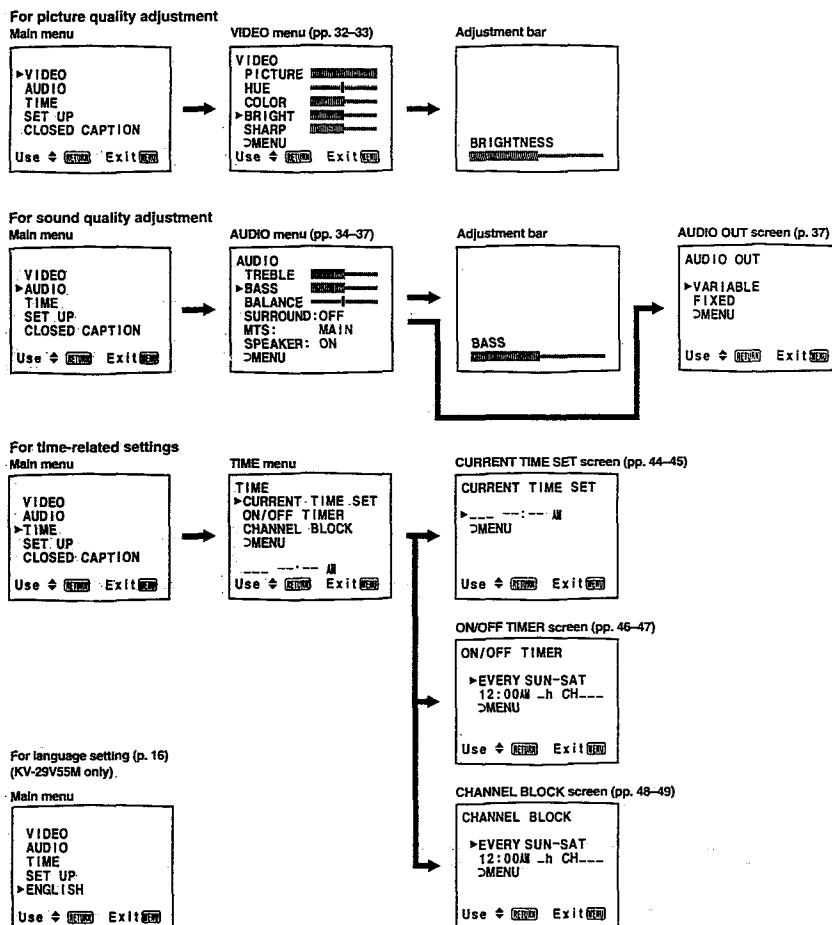
\* Buttons with the same function are also located on the TV (p. 7).



**Note**  
If the TV/CABLE selector is set to CABLE, the Remote Commander is able to control a connected cable box, not the TV. Set the selector to TV to control the TV set with the Remote Commander (You can use POWER button at any case).

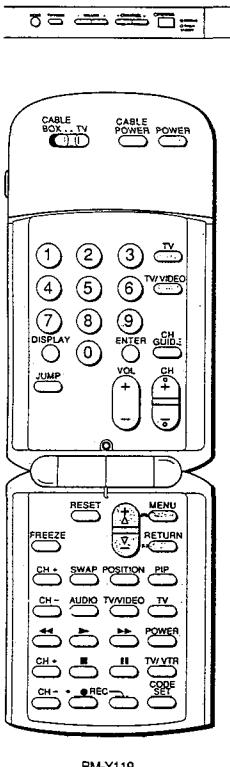
## 1-2. USING THE ON-SCREEN MENUS

The following flow chart shows the different levels of on-screen menus that you can use to make various adjustments and settings. See the indicated pages for instructions on using each feature.





## 1-4. PRESETTING TV CHANNELS



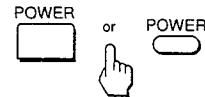
RM-Y119

Channels that can be received on this TV:

VHF	UHF	Cable
2-13	14-69	1-125

### Presetting TV Channels Automatically

1 Press POWER on the TV or the Remote Commander to turn the TV on. The TIMER/STAND BY indicator blinks until the picture appears.



2 Set the cable connection on or off, depending on if you want to preset cable or VHF/UHF channels. (Follow the steps in "Turning the Cable Mode On or Off", p. 17)

3 Press MENU. The main menu appears.



4 Press △+ or ▽- to select SET UP. Then press RETURN. The SET UP menu appears.



**Note**  
If the AUTO PROGRAM display appears in black, the TV is in video mode and you cannot select AUTO PROGRAM. Press TV or TV/VIDEO to change to TV mode.

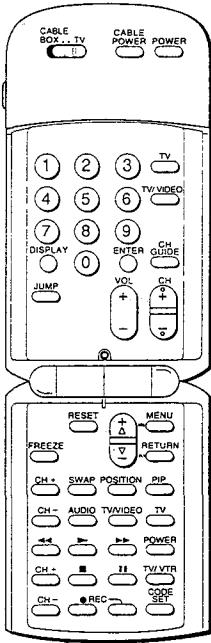
5 Press △+ or ▽- to select AUTO PROGRAM. Then press RETURN.



"AUTO PROGRAM" appears on the screen and receivable channels (other than the channels already preset) are preset in numerical sequence. The channels previously preset will not remain in the TV's memory.

When no more channels can be found, the programming stops and the lowest numbered channel is displayed.

To erase unnecessary channels, or to add channels that could not be preset automatically because their signal was too weak, follow the steps in "Erasing Unnecessary Channels — CHANNEL ERASE" (pp. 19-20) and "Presetting Only Desired Channels — CHANNEL ADD" (p. 21).

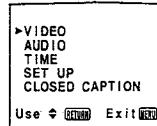


RM-Y119

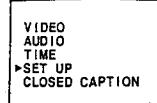
### Erasing Unnecessary Channels—CHANNEL ERASE

Use this feature to erase unnecessary TV channels, so that when you press CH +/-, the channel(s) are skipped.

1 Press MENU. The main menu appears.



2 Press △+ or ▽- to select SET UP



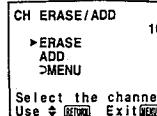
Press RETURN. The SET UP menu appears.



3 Press △+ or ▽- to select CH ERASE/ADD.

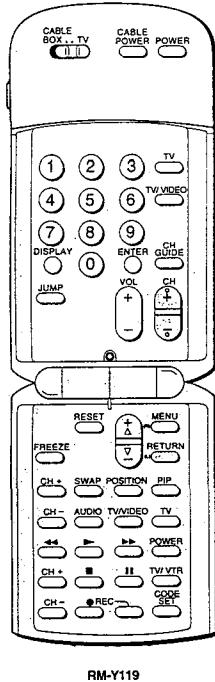


Press RETURN. The CH ERASE/ADD screen appears, and the cursor points to "ERASE".



**Note**

If CH ERASE/ADD display appears in black, the TV is in video mode and you cannot select CH ERASE/ADD. Press TV or TV/VIDEO to change to TV mode.

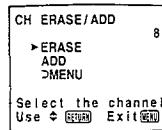
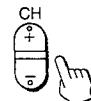


To return to the normal screen  
Press MENU.

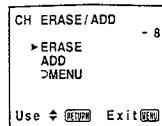
**Note**

When you erase a VHF or UHF channel, the cable TV channel with the same number is also erased, and vice versa.

**4** Press the CH +/- button to select the channel you want to erase.  
For example, to erase channel 8, press CH +/- until 8 appears.



Press RETURN.  
A “\*” sign appears in front of the channel number display, indicating that the channel is erased from the channel scan memory.



The next time you press the CH +/- buttons, channel 8 will be skipped.

To erase other channels  
Repeat step 4.

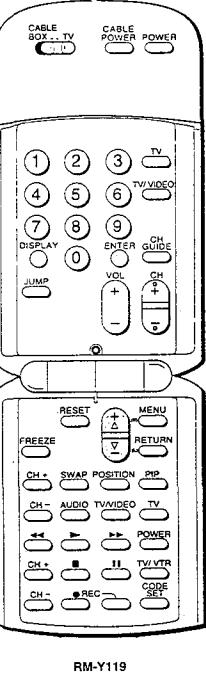
Cable TV channel chart\*

Cable TV systems use letters or numbers to designate channels. To tune in a channel, refer to the chart below.

Number on this TV.	Corresponding cable TV channel
1	A-8
5	A-7
6	A-6
14	A
15	B
16	C
17	D
18	E
19	F
20	G
21	H
22	I
23	J
24	K
25	L
26	M
27	N
28	O
29	P
30	Q
31	R
32	S

Number on this TV.	Corresponding cable TV channel
33	T
34	U
35	V
36	W
37	W+1
38	W+2
39	W+3
93	W+57
94	W+58
95	A-5
96	A-4
97	A-3
98	A-2
99	A-1
100	W+59
101	W+60
102	W+61
123	W+82
124	W+83
125	W+84

\* This designation of cable TV channels conforms to the EIA/NCTA recommendation.  
Check with your local cable TV company for more complete information on the available channels.



RM-Y119

**Presetting Only Desired Channels—CHANNEL ADD**

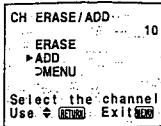
Use this feature to add channels one by one to the channel scan memory.

**1-3** (Follow steps 1-3 in “Erasing Unnecessary Channels—CHANNEL ERASE,” p. 19.)

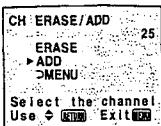
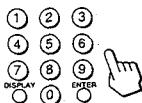
**Note**

If the CH ERASE/ADD display appears in black, the TV is in video mode and you cannot select CHANNEL ERASE/ADD:  
Press TV or TV/VIDEO to change to TV mode.

**4** Press  $\Delta$  or  $\nabla$  to select ADD.

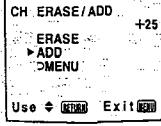


**5** Press 0-9 and ENTER to select the channel you want to add.  
For example, to add channel 25, press 2, 5 and ENTER.



Press RETURN.

A “\*” sign appears in front of the channel number display, indicating that the channel is added to the channel scan memory.



To add other channels  
Repeat step 5.

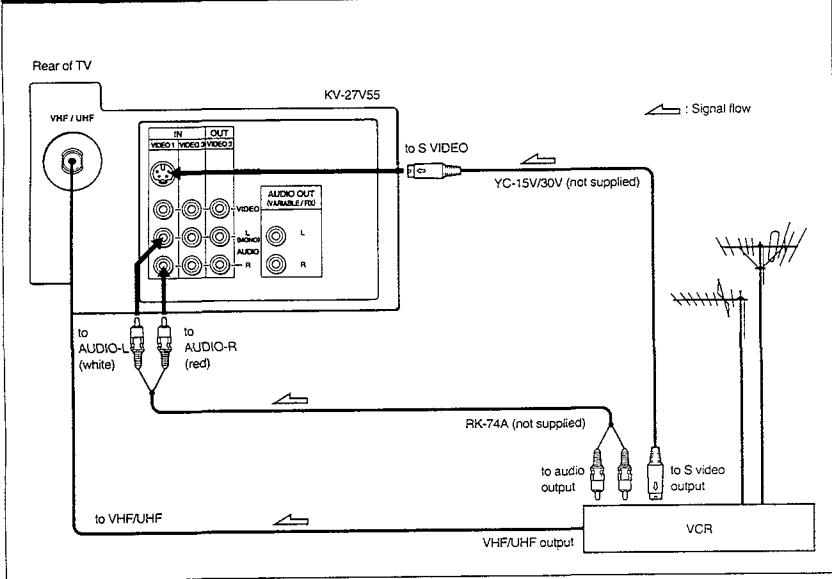
## 1-5. CONNECTING OTHER EQUIPMENT

### Video Equipment

After connecting, you will be able to...   

- Play back video tapes
- Watch two TV programs at once using a window picture (Picture-in-Picture, pp. 38-43)

### Connecting a VCR with an S video output jack



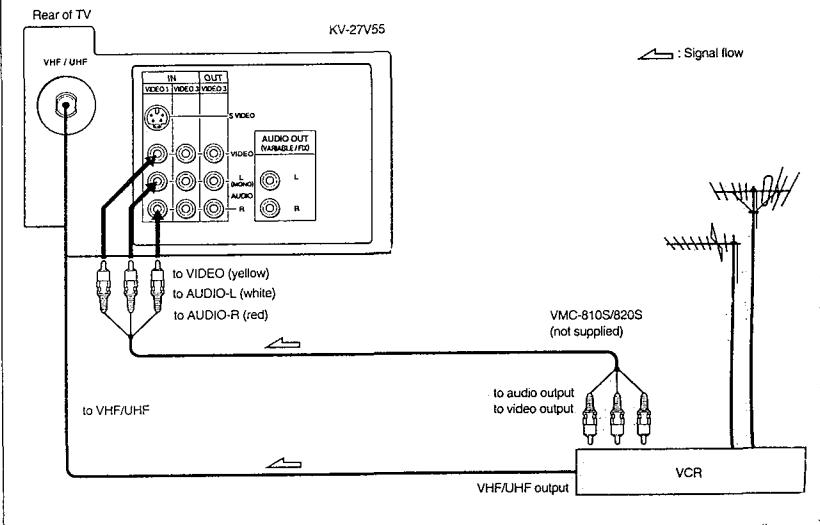
#### Notes

- If you connect a monaural VCR, connect the audio output of the VCR to the L (MONO) jack of VIDEO 1 IN on the TV. The monaural sound will be heard from both speakers.
- For operating instructions, refer to the instruction manual furnished with the VCR.
- If the picture or sound is affected, move the VCR away from the TV.
- If S VIDEO is set to OFF, you cannot watch VCR playback pictures from the S VIDEO IN. To set S VIDEO to ON, see "Watching a Video with Your S Video-Equipped VCR", p. 28.

#### About S video input

Video input and output signals can be separated into Y (luminance or brightness) and C (chroma or color) signals. Usually these two signals are combined in a VCR and sent as one signal to a TV. Separation of the Y and C signals prevents them from interfering with one another, thereby improving picture (especially color) quality. This TV is equipped with an S video input jack through which these separated signals can be input directly. This way you can connect your S video-equipped VCR separately from a non-S video VCR.

### Connecting video equipment not equipped with an S video output jack



#### Preparing for use

- 1 Turn on the TV.
- 2 Press the TV/VIDEO button on the TV or on the Remote Commander so that VIDEO appears on the screen.

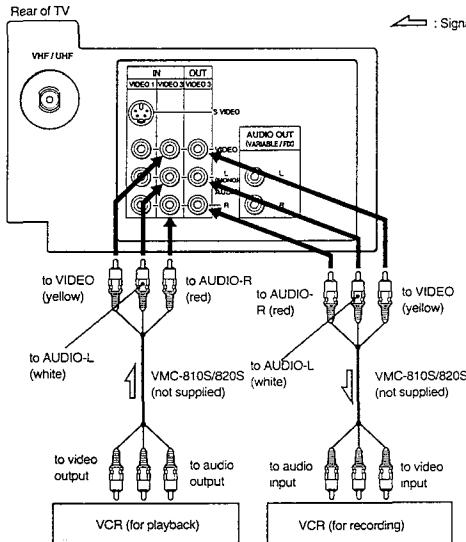
**When you cannot obtain a clear picture and/or sound**  
Make sure that the TV/VTR on the VCR is set to TV. Reselect the channel you want to view with the controls on the TV or the Remote Commander.

#### Operating your equipment

When using a Sony VCR, Multi-disc player or other manufacturer's infrared remote control VCR, you can operate most of the equipments by using the supplied pre-programmed Remote Commander (p. 55).

#### To return to TV mode

Press the TV or TV/VIDEO button so that a channel number appears on the screen.

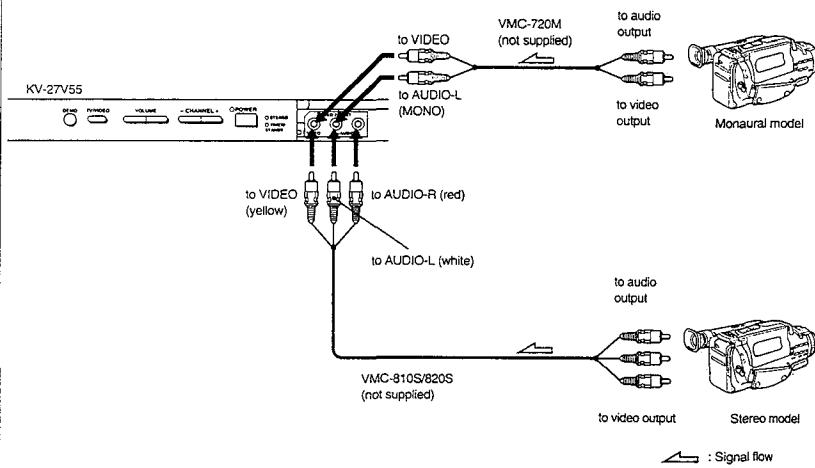
**Connecting two VCRs for tape editing****Watching a different image while duplicating**

You can duplicate your recorded tapes by connecting two VCRs.

The VIDEO 3 OUT jacks only output the signal from the VIDEO 3 IN jacks even when the TV is turned off. Connect a VCR for playback to VIDEO 3 IN jacks, and a VCR for recording to the VIDEO 3 OUT jacks. You can watch a TV program or images from VIDEO 1 IN or VIDEO 2 IN during duplicating.

**To watch a different input image**

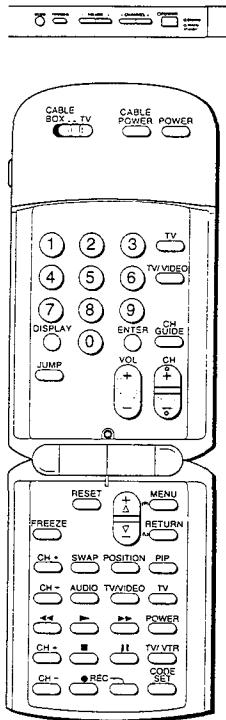
Press TV or TV/VIDEO to select the input image you want to watch.

**Connecting camcorders****Playing back recorded tapes****Preparing for use**

Same as p. 23.

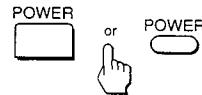


## 1-6. WATCHING TV PROGRAMS



RM-Y119

**1** Press POWER on the TV or the Remote Commander to turn the TV on. The TIMER/STAND BY indicator blinks until the picture appears.

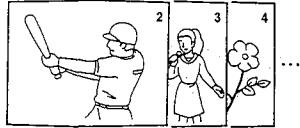
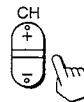


**2** Turn the cable mode on or off to select the type of channel you want to watch, VHF/UHF or cable TV. (Follow the steps in "Turning the Cable Mode On or Off," p. 17.)

If "VIDEO" or "S VIDEO" is displayed on the screen, press the TV or TV/VIDEO button so that the channel number appears.

**3** Select a channel in one of the following two ways:

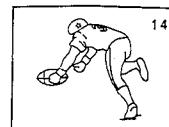
To scan the preset channels\* in numerical sequence  
Press CH +/–



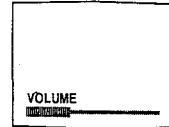
\* For more information on presetting channels, see pp. 18-21.  
To select a channel directly

Press 0 – 9 and ENTER.

For example, to select channel 14, press 1, 4 and ENTER.



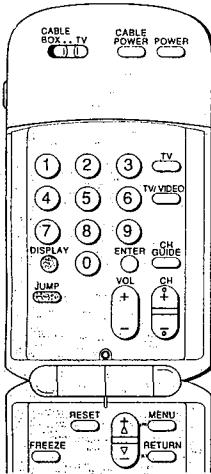
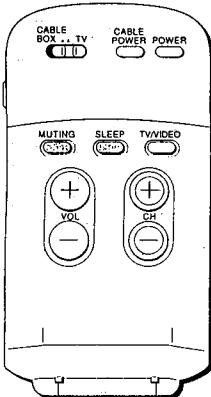
**4** Press VOL +/– to adjust the volume.



The display will disappear automatically after 3 seconds.

To turn off the TV  
Press POWER on the TV or the Remote Commander again.

## 1-7. USING CONVENIENT FEATURES



RM-Y119

### Muting the Sound—MUTING

Press MUTING.  
The display "MUTING" will appear on the screen.



To restore the sound  
Press MUTING again, or press VOL +.

### Keeping the Displays On-Screen—DISPLAY

To display the channel  
Press DISPLAY.

All the existing displays appear: channel number, channel caption (if set), MTS mode ("SAP" only), window picture input mode and the current time ("AM" or "PM" disappears after about three seconds).

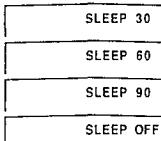


To cancel the display  
Press DISPLAY again.  
The channel display will disappear.

### Using the Sleep Timer—SLEEP

The sleep timer turns off the TV automatically after the amount of time you selected.

Press SLEEP.  
Each time you press SLEEP, the time increments "30", "60", "90" and "OFF" mode appear in sequence.



The SLEEP display appears about one minute before the TV turns off.

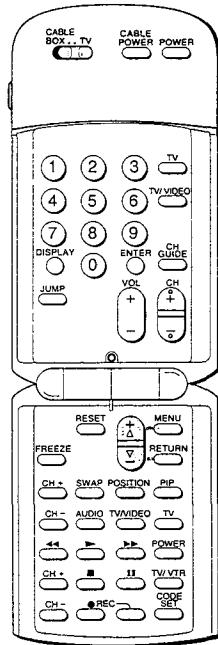
To cancel the setting  
Press SLEEP until "OFF" mode appears.  
The "SLEEP OFF" display appears for about three seconds.  
OR  
Turn the TV off.  
The sleep timer setting is cancelled.

### Switching Quickly Between Two Channels—JUMP

Press JUMP once to recall the channel you were watching previously. Press JUMP again to switch back. Use this feature to keep track of two programs alternately.

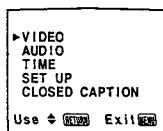


## 1-8. USING CLOSED CAPTION (except for KV-29V55M)

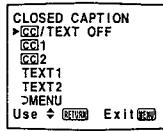
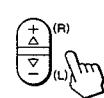


RM-Y119

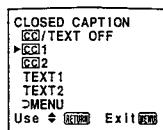
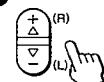
1 Press MENU.  
The main menu appears.



2 Press  $\Delta$  or  $\nabla$  to select CLOSED CAPTION.  
Then press RETURN.  
The CLOSED CAPTION screen appears.



3 Press  $\Delta$  or  $\nabla$  to select closed caption mode.



Select CC1 or CC2 to view Captions.  
A Caption is a printed version of the dialogue or sound effects of a program. (The mode should be set to CC1 for most programs.)

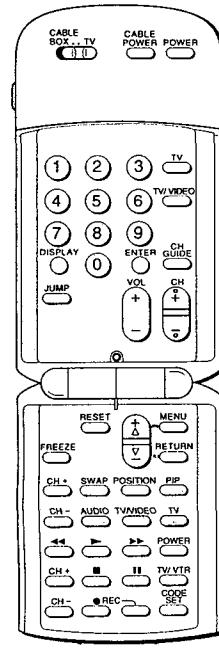
Select TEXT1 or TEXT2 to view Text.  
Text is information that is presented using the half to full television screen. It is usually not related to the program.

Select CC/TEXT OFF if you do not want to use the CLOSED CAPTION mode.

Press RETURN.  
The setting is completed.

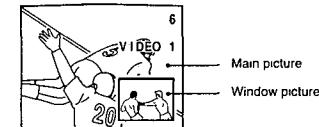


## 1-9. WATCHING TWO PICTURES AT ONCE (PICTURE-IN-PICTURE)



RM-Y119

You can watch both the main picture and a window picture simultaneously by using the Picture-in-Picture (PIP) function.  
In order to enjoy this function, first connect a VCR to the TV.  
Then you can watch a second TV channel through the VCR tuner.  
(See "Connecting Other Equipment", pp. 22-27.)



Main picture  
Window picture

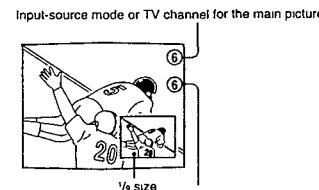
### Picture-in-Picture special features

When watching the main picture and a window picture, you can:

- Swap the main and window pictures (SWAP).
- Change the position of the window picture (POSITION).
- Display a still picture as a window (FREEZE).
- Choose the sound from the main or window picture (AUDIO).

### Displaying a window picture—PIP

Press PIP to display a window picture.

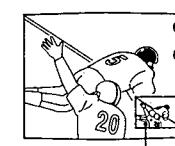


Input-source mode or TV channel for the main picture



Input-source mode or TV channel for the window picture

Press PIP again to display a smaller window picture.

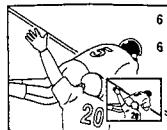


To disappear the window picture  
Press PIP once more.



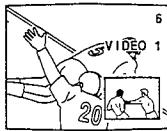
### Changing the window picture input mode

1 Press PIP to display a window picture.

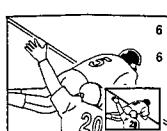


2 Press TV/VIDEO in the Picture-in-Picture control area to select the input mode.

*Each time you press TV/VIDEO, "TV", "VIDEO 1", "VIDEO 2" and "VIDEO 3" appear in sequence.*



Press TV in the Picture-in-Picture control area to return to TV mode directly.



*A window picture will appear in the same input mode as the last time you used PIP*

### To receive the window picture sound

Press AUDIO.

*The  display appears for a few seconds, indicating that the window picture sound is being received.*

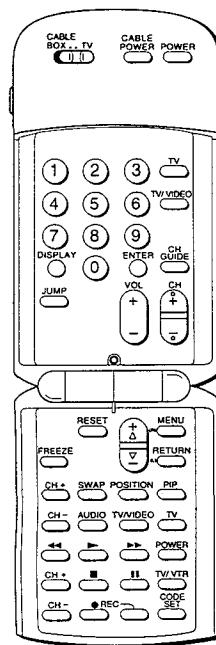


### To restore the main picture sound

Press AUDIO again.

### Notes

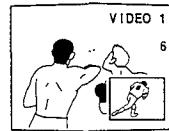
- If the main picture is not receiving an image, the window picture may be in black and white.
- When you turn PIP on or when you turn the TV on with PIP mode, the window picture will appear at the bottom right of the screen.
- The window picture may be affected by the condition of the main picture.
- The window picture sound is also output from the VARIABLE/FIX AUDIO OUT jacks.



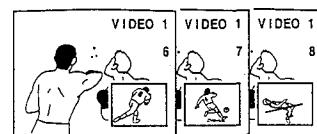
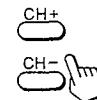
RM-Y119

### Changing TV channels in the window picture

1 Press PIP to display a window picture.

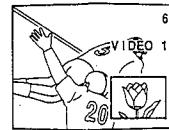


2 Press CH +/- in the PIP control area.



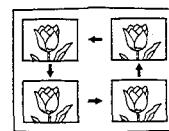
### Changing the position of the window picture—POSITION

1 Press PIP to display a window picture.



2 Press POSITION.

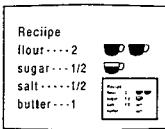
*Each time you press POSITION, the window picture will move counterclockwise on the screen, as illustrated below.*



**Displaying a still picture — FREEZE**

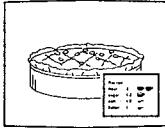
Use the FREEZE function to display a still picture as a window. This function is useful when you want to write down a recipe from a cooking program, a displayed address or a phone number and so on.

**1** Press PIP to display a window picture.



**2** Press FREEZE.

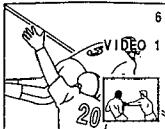
The window picture image remains still on the screen.



To restore the normal picture  
Press FREEZE again.

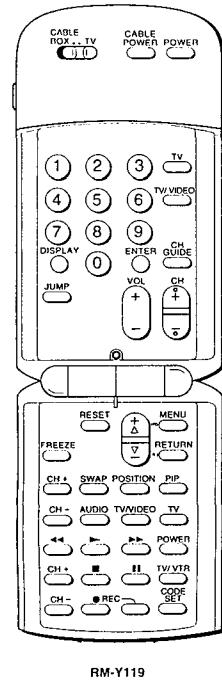
**Swapping the main and window pictures — SWAP**

**1** Press PIP to display a window picture.

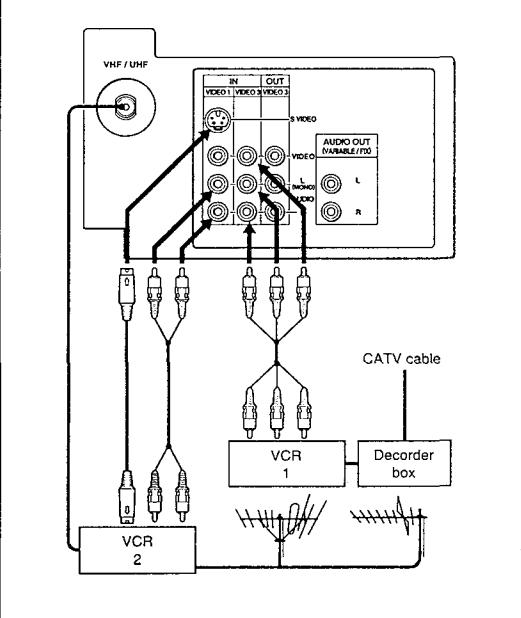


**2** Press SWAP.

Each time you press SWAP, the images from the main and window pictures switch places.

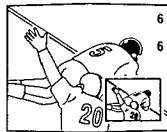
**Displaying a pay cable TV channel as a window picture**

To display a pay cable TV channel as a window picture, connect your decoder box as illustrated below.

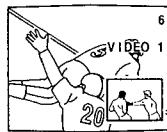
**Connection**

After making the connections, turn the cable mode on by following the steps "Turning the Cable Mode On or Off", p. 17. Then continue with steps below.

**1** Press PIP to display a window picture.



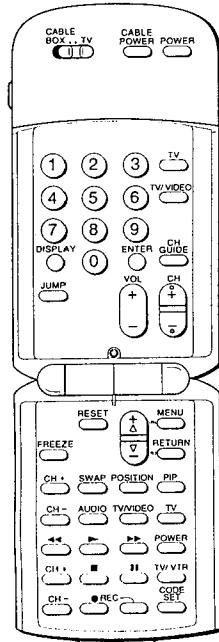
**2** Press TV/VIDEO in the Picture-in-Picture control area to select the input mode.  
Each time you press TV/VIDEO, "TV", "VIDEO 1", "VIDEO 2" and "VIDEO 3" appear in sequence.



**3** Put your VCR on an inactive channel (CH 3 or 4).

**4** Change pay cable TV channels with the decoder box.

## 1-10. USING THE TIMER-ACTIVATED FUNCTIONS



RM-Y119

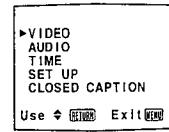
### Setting the Clock—CURRENT TIME SET

Follow these instructions to set the current time. The correct time must be set in order to use the timer-activated functions (ON/OFF TIMER, CHANNEL BLOCK).

EXAMPLE: Set the time to 3:15 PM, Monday.

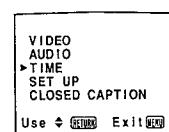
**1** Press MENU.

The main menu appears.



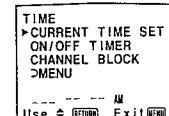
Use  $\downarrow$   $\uparrow$   $\leftarrow$   $\rightarrow$   $\text{RETURN}$   $\text{Exit}$

**2** Press  $\Delta$  or  $\nabla$  to select TIME.



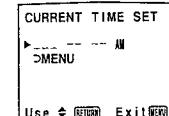
Use  $\downarrow$   $\uparrow$   $\leftarrow$   $\rightarrow$   $\text{RETURN}$   $\text{Exit}$

Press RETURN.  
The TIME menu appears, and the cursor points to "CURRENT TIME SET".



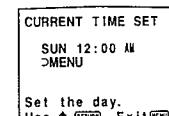
Use  $\downarrow$   $\uparrow$   $\leftarrow$   $\rightarrow$   $\text{RETURN}$   $\text{Exit}$

**3** Press RETURN.  
The CURRENT TIME SET screen appears.



Use  $\downarrow$   $\uparrow$   $\leftarrow$   $\rightarrow$   $\text{RETURN}$   $\text{Exit}$

**4** Press RETURN again.  
"Set the day." appears on the screen.

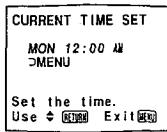


Use  $\downarrow$   $\uparrow$   $\leftarrow$   $\rightarrow$   $\text{RETURN}$   $\text{Exit}$

**5** Press  $\Delta+$  or  $\nabla-$  to set the day.  
Each time you press  $\Delta+$  or  $\nabla-$ , the day changes consecutively.



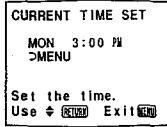
Press RETURN.  
"Set the day." appears on the screen.



**6** Press  $\Delta+$  or  $\nabla-$  to set the hour.  
Each time you press  $\Delta+$  or  $\nabla-$ , the hour changes starting with "12:00 AM."



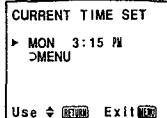
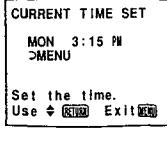
Press RETURN.



**7** Press  $\Delta+$  or  $\nabla-$  to set the minutes.  
Each time you press  $\Delta+$  or  $\nabla-$ , the minutes change in sequence.



Press RETURN.  
The setting is completed, and the clock starts.



**To reset the time**  
Press RESET while in the CURRENT TIME screen, and repeat steps 4-7.

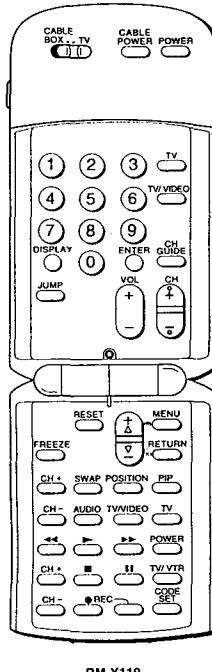
**To display the time**  
Press DISPLAY.

**To return to the normal screen**  
Press MENU.

#### Notes

- The internal clock of this TV operates on a 12-hour cycle. If a 24-hour cycle number (for instance, 13:00) is entered, it will be cleared when you press RETURN.
- All the settings including CURRENT TIME SET will be erased if you unplug the TV or a power failure occurs. Reset the current time by following steps 1-7.

12:00 AM stands for midnight.  
12:00 PM stands for noon.



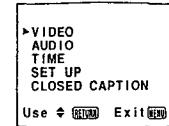
RM-Y119

#### Setting the ON/OFF TIMER

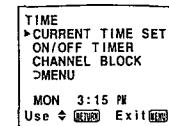
With this function you can set your favorite program to appear on the screen at the time that you set.

**EXAMPLE:** Set the timer to turn on the TV every Monday through Friday at 3:15 PM for 2 hours, on channel 21.

**1** Press MENU.  
The main menu appears.



**2** Press  $\Delta+$  or  $\nabla-$  to select TIME.  
Then press RETURN.  
The TIME menu appears.



**3** Press  $\Delta+$  or  $\nabla-$  to select ON/OFF TIMER.  
Then press RETURN.  
The ON/OFF TIMER screen appears.



**Note**  
If the ON/OFF TIMER display appears in black, the current time has not been set and you cannot select ON/OFF TIMER. To set the clock, see "Setting the Clock—CURRENT TIME SET", pp. 44-45.

**4** Press RETURN again.  
"Set the day." appears on the screen.



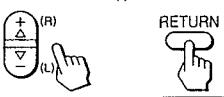
5 Press  $\Delta+$  or  $\nabla-$  to set the day.  
Each time you press  $\Delta+$  or  $\nabla-$ , the days of the week change as shown in Fig. 1.  
Then press RETURN.  
"Set the time." appears on the screen.



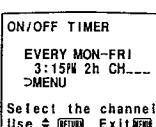
6 Press  $\Delta+$  or  $\nabla-$  to set the hour that you want the TIMER to start.  
Each time you press  $\Delta+$  or  $\nabla-$ , the hour changes in sequence.  
Then press RETURN.



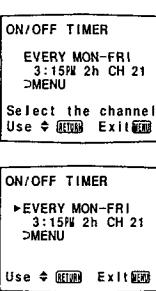
7 Press  $\Delta+$  or  $\nabla-$  to set the minutes.  
Each time you press  $\Delta+$  or  $\nabla-$ , the minutes change in sequence.  
Then press RETURN.  
"Set the duration." appears on the screen.



8 Press  $\Delta+$  or  $\nabla-$  to set the duration of time.  
Each time you press  $\Delta+$  or  $\nabla-$ , the duration changes from "1" to "6" in sequence.  
Then press RETURN.  
"Select the channel" appears on the screen.



9 Press  $\Delta+$  or  $\nabla-$  to set the channel that you want the TV to tune in.  
Each time you press  $\Delta+$  or  $\nabla-$ , the channel number changes from 1 to 125 in sequence.



Press RETURN.  
The setting is completed, and the TIMER indicator on the front of the TV lights up.



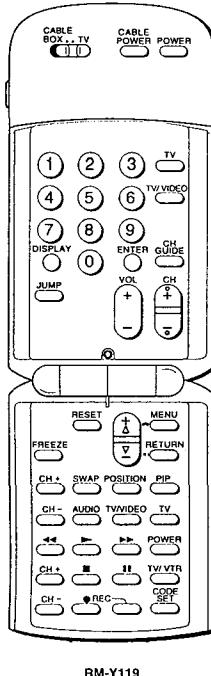
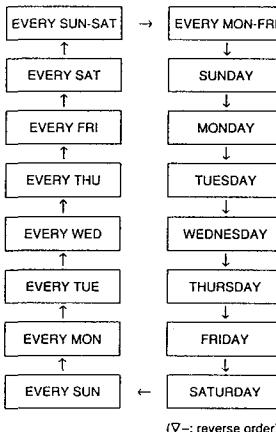
To clear the ON/OFF TIMER setting  
Press RESET while in the ON/OFF TIMER screen.

To return to the normal screen  
Press MENU.

#### Notes

- While the TIMER is set, the TIMER indicator on the TV is on.
- One minute before the timer goes off, the "TV will turn off" display will appear on the screen.
- All the settings including ON/OFF TIMER will be erased if you unplug the TV or a power failure occurs. Reset the ON/OFF TIMER by following steps 1-9.
- If you have not set the clock correctly, the ON/OFF TIMER will not operate at the proper time. To set the clock, see "Setting the Clock—CURRENT TIME SET", pp. 44-45.

Fig. 1  
Selecting the day(s) of the week  
When you press  $\Delta+$ , the days of the week appear in the following order.



RM-Y119

#### Setting CHANNEL BLOCK

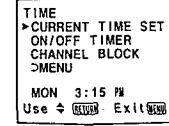
Use this function to block a channel from appearing on the screen during the time you specify. You can use this function to prevent children from watching undesirable programs.

EXAMPLE: Set CHANNEL BLOCK every Sunday at 8:45 PM for one hour, on channel 38.

1 Press MENU.  
The main menu appears.



2 Press  $\Delta+$  or  $\nabla-$  to select TIME.  
Then press RETURN.  
The TIME menu appears.



3 Press  $\Delta+$  or  $\nabla-$  to select CHANNEL BLOCK.  
Then press RETURN.  
The CHANNEL BLOCK screen appears.



Note  
If the CHANNEL BLOCK display appears in black, the current time has not been set and you cannot select CHANNEL BLOCK. To set the clock, see "Setting the Clock—CURRENT TIME SET", pp. 44-45.

4 Press RETURN again.  
"Set the day." appears on the screen.

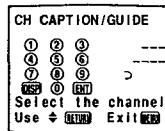




**5** Press  $\Delta$  or  $\nabla$  to select a caption position number.  
Each time you press  $\Delta$  or  $\nabla$ , the caption position number is marked in sequence.

Then press RETURN.

"Select the channel" appears on the screen.



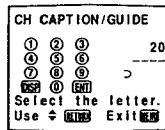
To erase unneeded captions  
Call the caption setting screen by following steps 1-5, and press RESET.

To return to the normal screen  
Press MENU.

**6** Press  $\Delta$  or  $\nabla$  to select the channel you want to caption.  
Each time you press  $\Delta$  or  $\nabla$ , the channel number changes from 1 to 125.

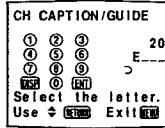
Then press RETURN.

"Select the letter." appears on the screen.

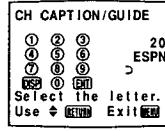


**7** Press  $\Delta$  or  $\nabla$  to select the first letter.  
Each time you press  $\Delta$  or  $\nabla$ , "0-9", "A-Z", "8", "7", "6" and "\_(blank space)" appear in sequence.

Then press RETURN.



**8** Repeat step 7 to select each remaining letter.  
(For a 3-letter caption, leave a space by pressing RETURN only.)

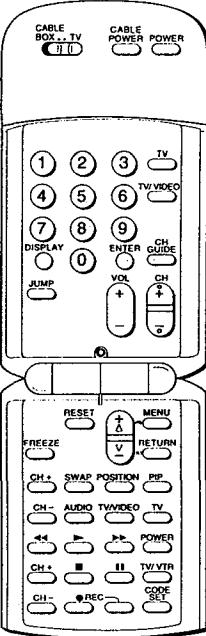


**9** Press RETURN.  
The setting is completed.

RETURN



To caption other channels  
Repeat steps 4-9.

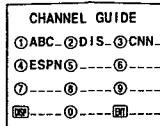


RM-Y119

### Viewing the Captioned Channels—CH GUIDE

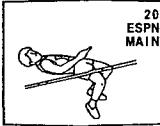
Use this feature to display the captions you set, and to select a channel directory for viewing.

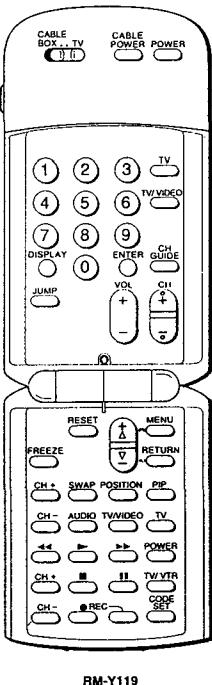
**1** Press CH GUIDE.  
A directory appears, corresponding to the directory keys on the Remote Commander.



To cancel the CHANNEL GUIDE screen  
Press CH GUIDE again.

**2** Press the directory key of the channel you want to watch.





RM-Y119

**Setting VIDEO LABEL**

Use this feature to label each input mode in order to identify the equipment connected to each input terminal.

EXAMPLE: Label VIDEO 1 IN as VHS.

**1** Press MENU.  
The main menu appears.



▶VIDEO  
AUDIO  
TIME  
SET UP  
CLOSED CAPTION  
Use  $\downarrow$  RETURN  $\uparrow$  Exit  $\times$

**2** Press  $\Delta$  or  $\nabla$  to select SET UP



VIDEO  
AUDIO  
TIME  
▶SET-UP  
CLOSED CAPTION  
Use  $\downarrow$  RETURN  $\uparrow$  Exit  $\times$

Press RETURN.  
The SET UP menu appears.



SET UP  
▶CABLE: ON  
AUTO PROGRAM  
CH ERASE/ADD  
CH CAPTION/GUIDE  
S VIDEO: ON  
VIDEO LABEL  
DMENU

**3** Press  $\Delta$  or  $\nabla$  to select VIDEO LABEL.

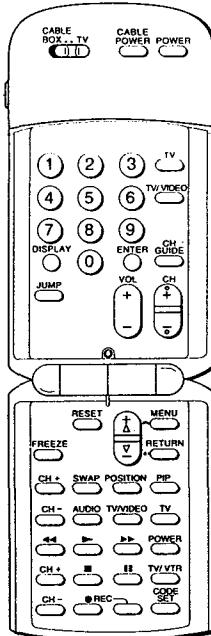


SET UP  
CABLE: ON  
AUTO PROGRAM  
CH ERASE/ADD  
CH CAPTION/GUIDE  
S VIDEO: ON  
▶VIDEO LABEL  
DMENU

Press RETURN.  
The VIDEO LABEL screen appears.



VIDEO LABEL  
▶VIDEO1: VIDEO1  
VIDEO2: VIDEO2  
VIDEO3: VIDEO3  
DMENU  
Use  $\downarrow$  RETURN  $\uparrow$  Exit  $\times$



RM-Y119

**4** Press  $\Delta$  or  $\nabla$  to select the input mode you want to label.



VIDEO LABEL  
▶VIDEO01: VIDEO1  
VIDEO02: VIDEO2  
VIDEO03: VIDEO3  
DMENU  
Use  $\downarrow$  RETURN  $\uparrow$  Exit  $\times$

Press RETURN.



**5** Press  $\Delta$  or  $\nabla$  to select VHS.



VIDEO LABEL  
VIDEO01: VIDEO1  
VIDEO02: VIDEO2  
VIDEO03: VIDEO3  
DMENU  
Use  $\downarrow$  RETURN  $\uparrow$  Exit  $\times$

Each time you press  $\Delta$ , the label changes:

VIDEO 1  
VIDEO 1  $\rightarrow$  S VIDEO  $\rightarrow$  BETA  $\rightarrow$  8 mm  $\rightarrow$  VHS  $\rightarrow$  LD

VIDEO 2  
VIDEO 2  $\rightarrow$  BETA  $\rightarrow$  8 mm  $\rightarrow$  VHS  $\rightarrow$  LD

VIDEO 3  
VIDEO 3  $\rightarrow$  BETA  $\rightarrow$  8 mm  $\rightarrow$  VHS  $\rightarrow$  LD

( $\nabla$  : reverse order)

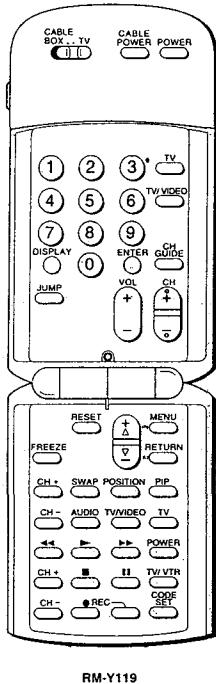
Press RETURN.



VIDEO LABEL  
▶VIDEO1: VHS  
VIDEO2: VIDEO2  
VIDEO3: VIDEO3  
DMENU  
Use  $\downarrow$  RETURN  $\uparrow$  Exit  $\times$

To label other input modes  
Repeat steps 4-5.

## 1-12. USING THE PRE-PROGRAMMED REMOTE COMMANDER

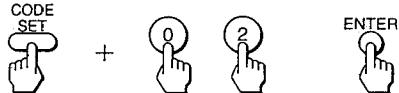


You can operate your video equipment and cable converter box that has an infrared remote detector with this supplied pre-programmed Remote Commander.

### Operating Sony or Non-Sony Video Equipment—Pre-Programmed Function

With the supplied Remote Commander, you can operate a Sony video cassette recorder (Beta, 8 mm, VHS) or a multi disc player as well as most non-Sony video equipment connected to your TV by following the steps below.

**1** While pressing CODE SET, press 0 - 9 to enter the manufacturer's code number (see chart on p. 56). For example, to operate a Sony 8 mm VCR, press 0, 2 and ENTER.



**2** Use the video operating buttons on the Remote Commander to operate the video equipment.

#### Operating a VCR

To turn on or off Press (VIDEO) POWER.  
To change channels Press CH +/-  
(when watching TV programs through the VCR's tuner)  
To record Press ● (2 buttons simultaneously).  
To play Press ▶.  
To stop Press ■.  
To fast forward Press ▶▶.  
To rewind the tape Press ▶◀.  
To pause Press ■■.  
To search the picture forward and backward Press ▶▶ or ▶◀ during playback.

#### Operating a Video Disc Player

To play Press ▶.  
To stop Press ■.  
To pause Press ■■.  
To resume normal playback, press again.  
\* This function is effective only for CAV (standard-play disc). With CLV (extended-play disc), the TV will go into the standby mode if ■■ is pressed.  
To search the picture forward and backward Keep pressing ▶▶ or ▶◀ during playback.  
To resume normal playback, release the button...

### Manufacturers and Code Numbers (VCR/video disc player)

Manufacturer	Code number
SONY	01, 02, 03, 04
CANON	05
EMERSON	22, 30, 33
FISHER	10, 11, 12, 15
FUNAI	29
GENERAL ELECTRIC	05, 08
GOLDSTAR	25
HITACHI	07, 08
JVC	16
MAGNAVOX	05, 06, 09
MITSUBISHI	18, 19, 26, 27
MULTITECH	29
NEC	16, 23, 31
PANASONIC	05, 06
PHILCO	05, 06
PHILIPS	05, 06, 09
QUASAR	05, 06
RCA	07, 08
SAMSUNG	24, 32
SANYO	11, 15
SCOTT	21
SHARP	13, 14
SHINTOM	34
SYLVANIA	05, 06, 09
SYMPHONIC	29
TEKNIKA	28, 29
TOSHIBA	20, 21
TOTE VISION	25
ZENITH	17

### Notes

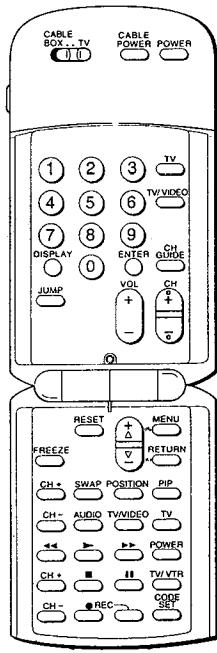
- If more than one code number is listed for manufacturers other than Sony, try entering them one by one, until you come to the correct code for your equipment.
- If the video equipment does not have a certain function, the corresponding button on this Remote Commander will not operate.
- In some rare cases, you may not be able to operate your non-Sony video equipment with the supplied Remote Commander. This is because your equipment may use a code that is not provided with this Remote Commander. In this case, please use the equipment's own remote control unit.

### CAUTION

When you remove the batteries from the Remote Commander, all the settings will revert to the Sony Beta setting. Reset the codes by following the steps on p. 55.

The code numbers for Sony equipment are assigned as follows:

01 ..... Beta, ED Beta VCR  
02 ..... 8 mm VCR  
03 ..... VHS VCR  
04 ..... Video disc player



RM-Y119

### Operating a Cable Converter Box

Follow these instructions to set the manufacturer's code which will enable you to operate a connected cable converter box with the pre-programmed Remote Commander.

EXAMPLE: Operate a connected Zenith cable converter box.

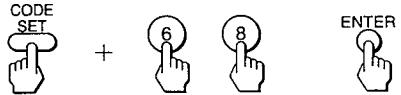
#### 1 Set the CABLEBOX-TV selector to CABLEBOX.



#### Notes

- If more than one code number is listed, try entering them one by one until you come to the correct code for your equipment.
- If you enter a new code number, the code number you previously entered at that setting is erased.
- In some rare cases, your equipment may use a code that is not provided with this Remote Commander and you may not be able to operate your cable converter box with the supplied Remote Commander. In this case, use the equipment's own remote control unit.

#### 2 While pressing CODE SET, press 6 and 8 (Zenith's code number -see chart below) and ENTER.



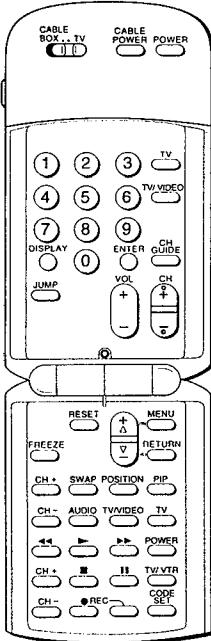
A long beep sounds, indicating that the code has been set.

#### Manufactures and Code Numbers (cable box)

Manufacturer	Code number
JERROLD	60, 61, 62, 63, 64, 65
PIONEER	69, 70
SCIENTIFIC ATLANTA	66, 67
TOCOM	71, 72
ZENITH	68

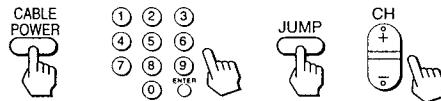
#### Note

If you press a wrong code or if the code has not been set, four short beeps sound. Repeat step 2 to set the code.



RM-Y119

### 3 Use CABLE POWER and the TV control buttons (0 – 9, ENTER, JUMP and CH +/-) to operate the cable converter box.



#### To operate the TV

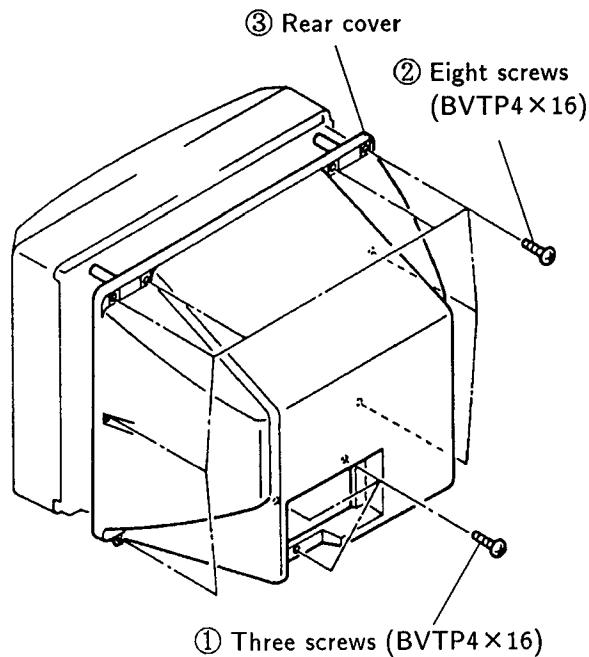
Set the CABLEBOX-TV selector to TV, then use the TV control buttons to control the TV.

#### For more details on operating the cable box

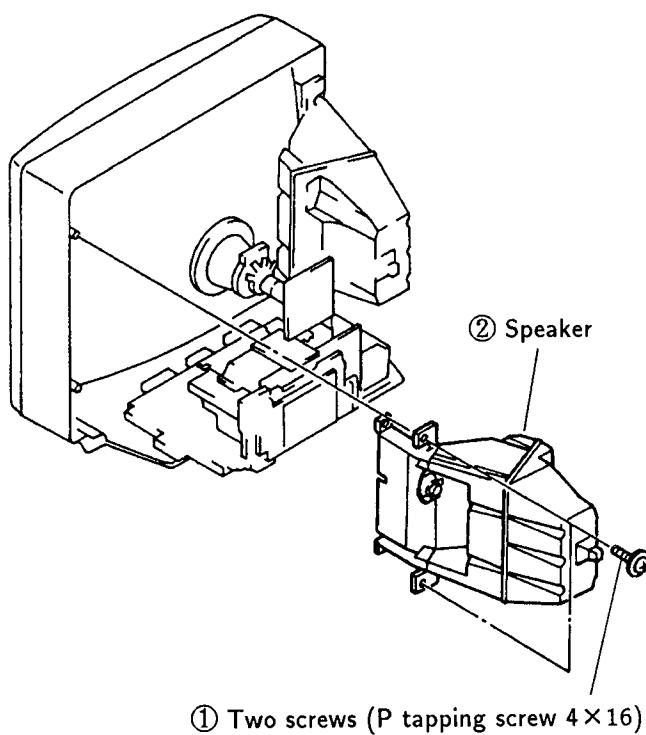
Refer to the operating instructions that come with the cable box.

## SECTION 2 DISASSEMBLY

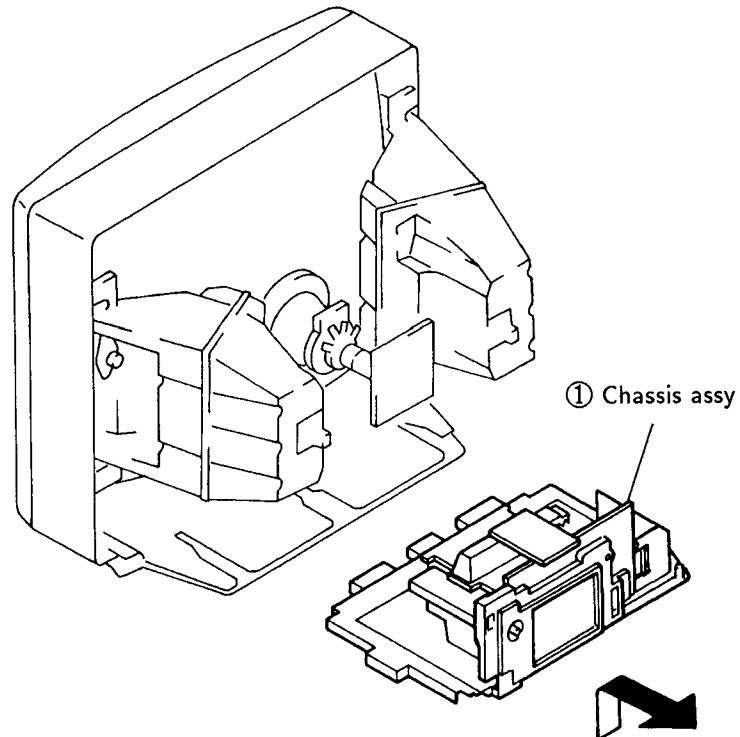
### 2-1. REAR COVER REMOVAL



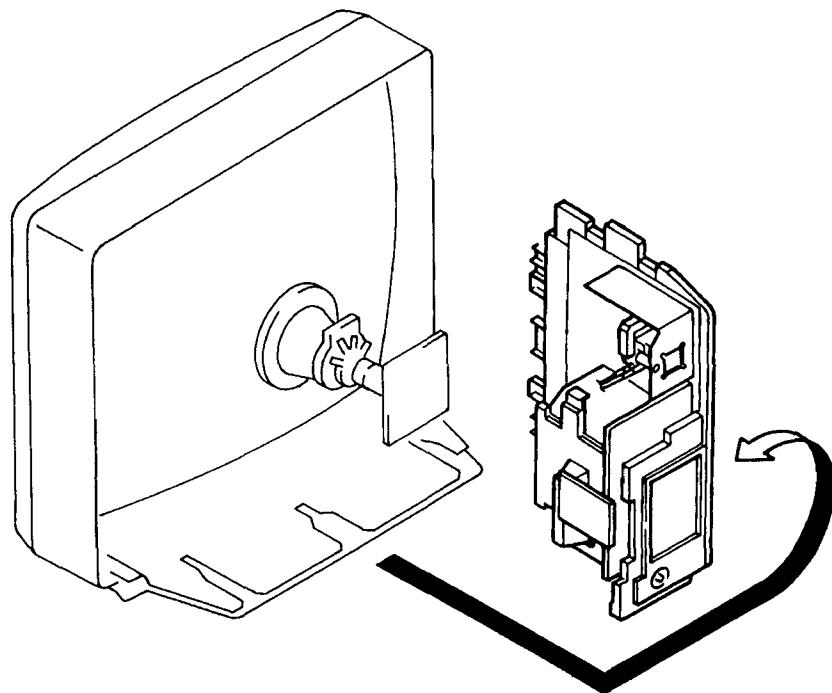
### 2-2. SPEAKER REMOVAL



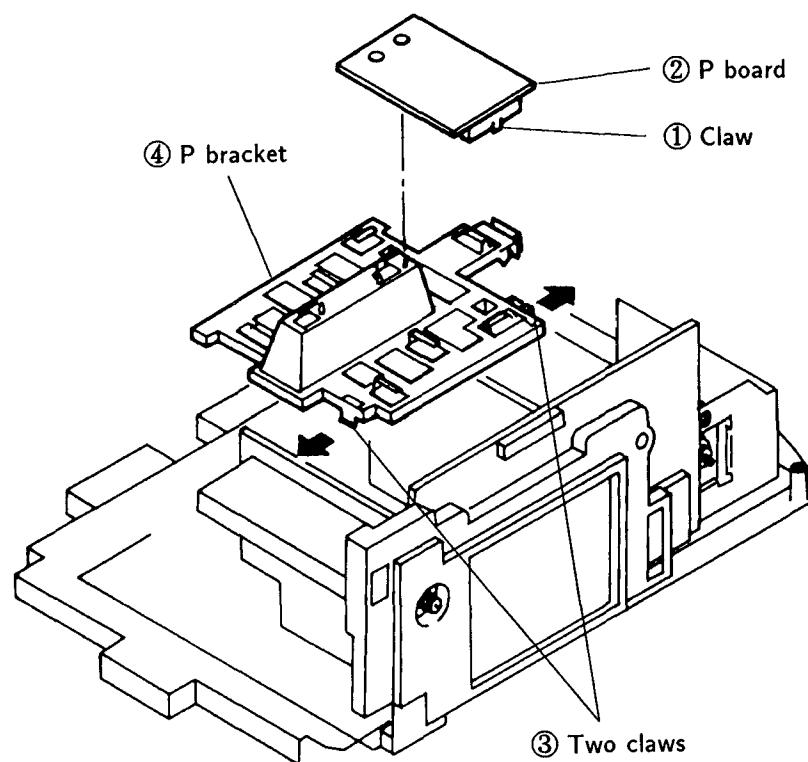
### 2-3. CHASSIS ASSY REMOVAL



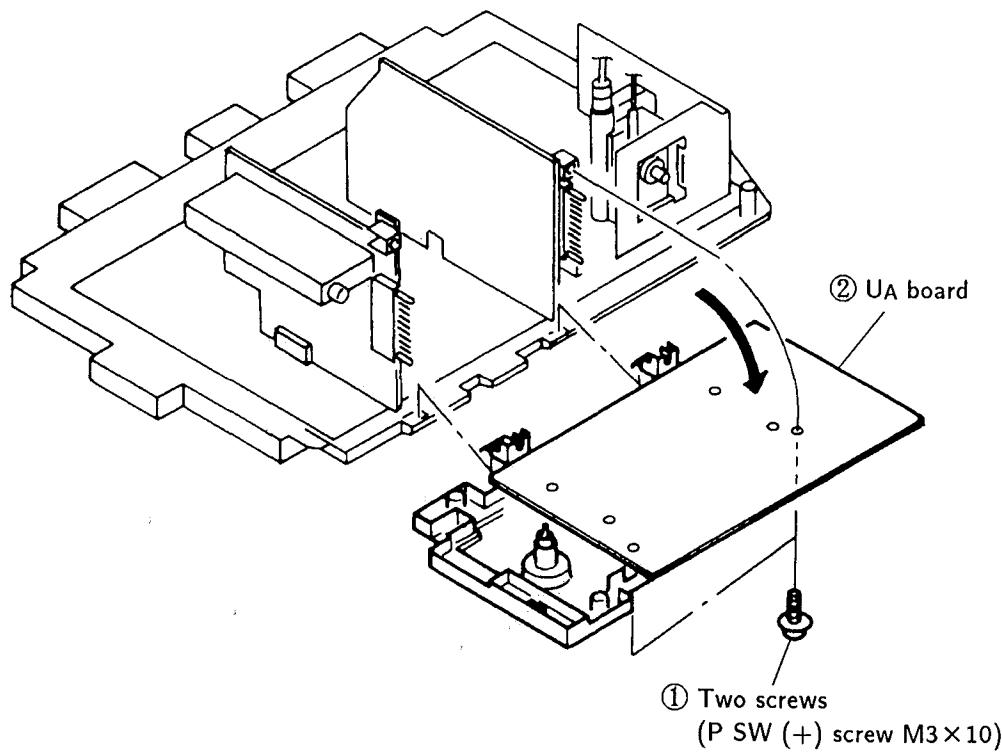
## 2-4. SERVICE POSITION



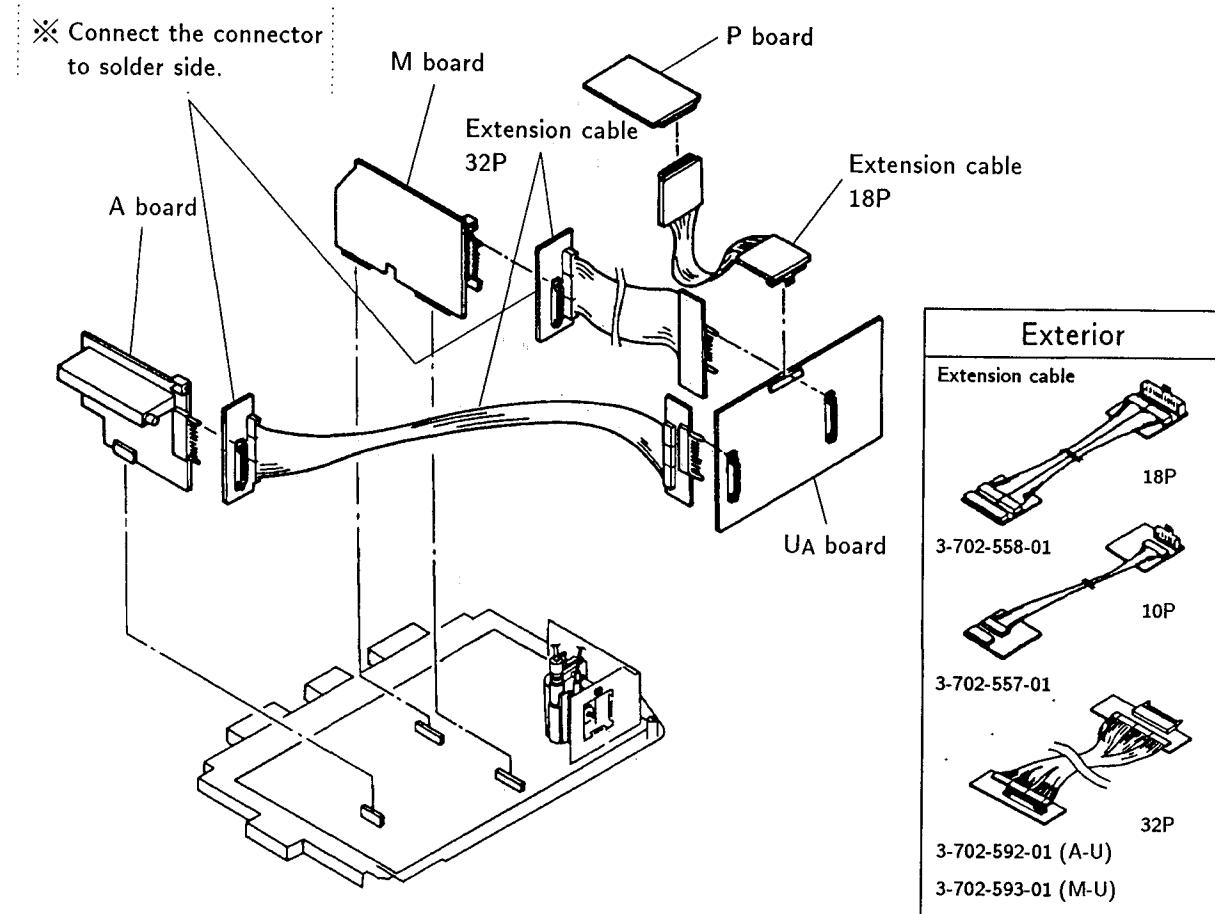
## 2-5. P BOARD AND P BRACKET REMOVAL



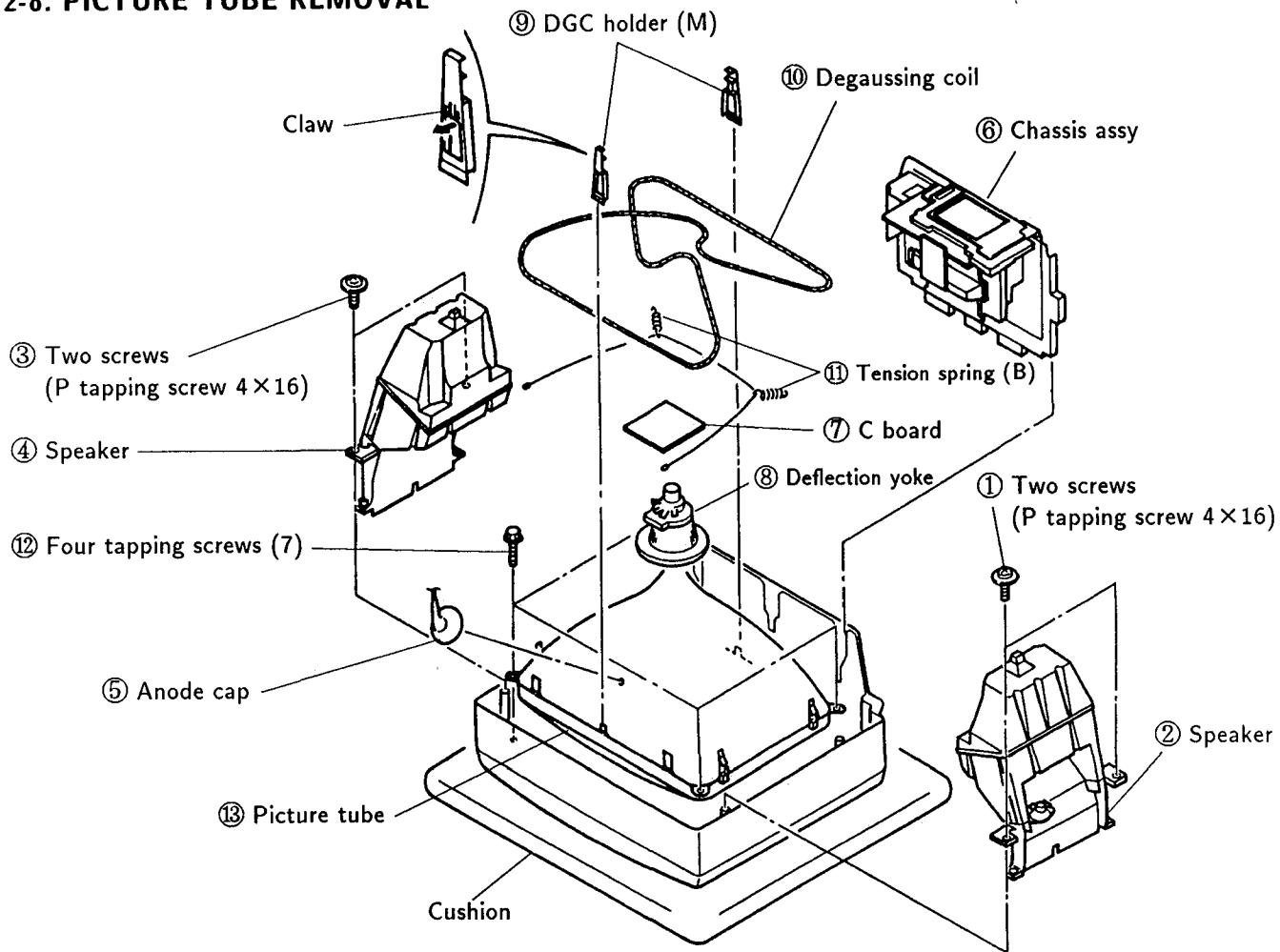
## 2-6. UA BOARD REMOVAL



## 2-7. EXTENSION CABLE



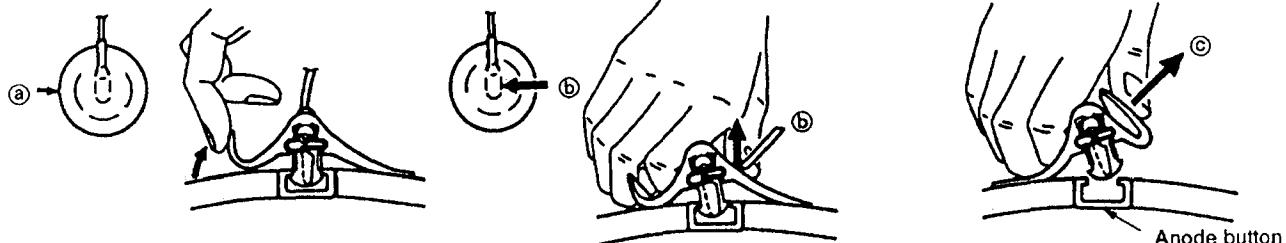
## 2-8. PICTURE TUBE REMOVAL



## • REMOVAL OF ANODE-CAP

NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon painted on the CRT, after removing the anode.

## • REMOVING PROCEDURES



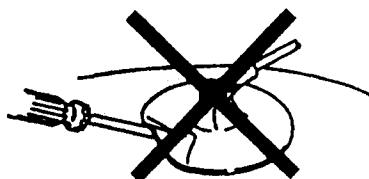
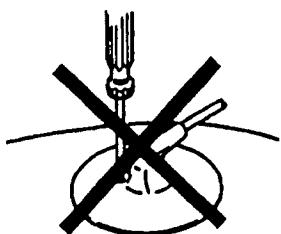
① Turn up one side of the rubber cap in the direction indicated by the arrow ②.

② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⑤.

③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ⑥.

## • HOW TO HANDLE AN ANODE-CAP

- ① Don't hurt the surface of anode-caps with sharp shaped material!
- ② Don't press the rubber hardly not to hurt inside of anode-caps!  
A material fitting called as shatter-hook terminal is built in the rubber.
- ③ Don't turn the foot of rubber over hardly!  
The shatter-hook terminal will stick out or hurt the rubber.



## 2-9. REPAIR OF CHIP COMPONENT CIRCUIT BOARD

### 2-9-1. POINTS OF COMPONENT REMOVAL

#### Handling of blower type soldering iron

If hot blast is too strong or applied from a slanting direction, small components and solder near the component being removed can be blown off. Do not use blower type without temperature control.

### 2-9-2. NOTES ON SOLDERING FOR CHIP COMPONENTS

- 1) During soldering a chip component, if a soldering iron is applied for a long time, the heat may damage the component or cause pattern peeling.
- 2) Do not reuse a removed component. The characteristics of such a component may deteriorate.
- 3) Use wire solder containing silver ( $\phi 0.3$  or  $\phi 0.6$ ). (The pin electrodes of the laminated chip capacitor are silver +palladium, so if wire solder which does not contain silver is used, the silver of the pin electrode will be sucked into the solder.)

### 2-9-3. REMOVAL AND MOUNTING OF COMPONENTS

#### Chip resistor and chip capacitor

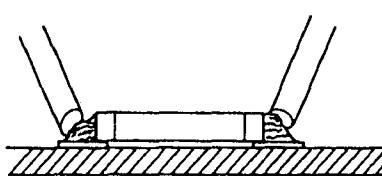
##### REMOVAL

- Using two soldering irons

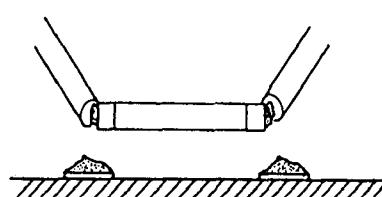
- 1) Mounted state



- 2) Melt the solder.

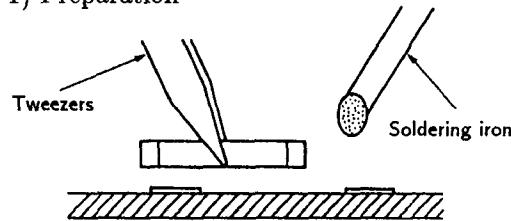


- 3) Remove the component.

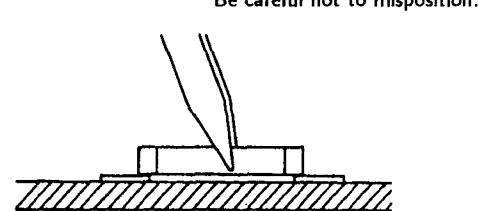


##### SOLDERING

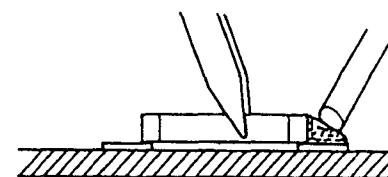
- 1) Preparation



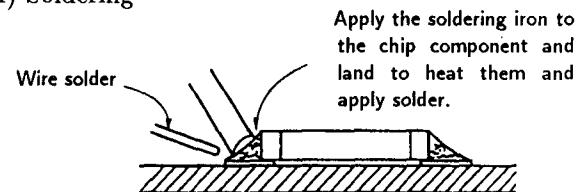
- 2) Location



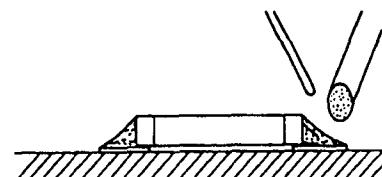
- 3) Tack soldering and flux application



- 4) Soldering



- 5) Soldering (Fix the fillet.)



- 6) Visual inspection

Check for the following defects :

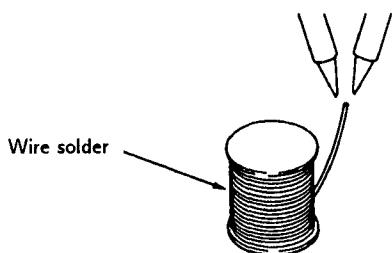
- No-soldered part
- Bridge (to other components or lands)
- Mispositioning
- Other defects

## 2-9-4. MINI-TRANSISTOR

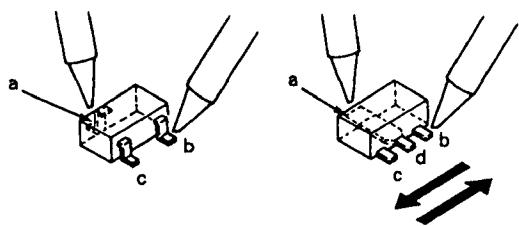
## REMOVAL

- Using two soldering irons

1) Put a little solder on the tip of two soldering irons.



2) Apply the tip of one soldering iron to the point "a" and the other to the points "b" → "c" (or "b" → "d" → "c") and move the component in the directions indicated by arrows in the figure to remove it.

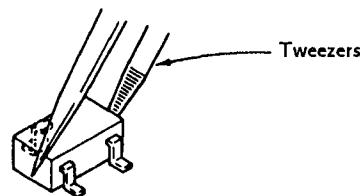


## MOUNTING

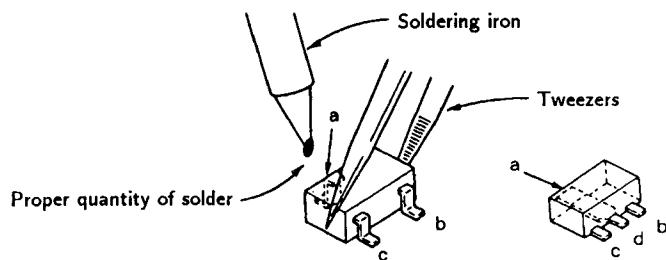
1) Apply a little flux to the land with a brush.



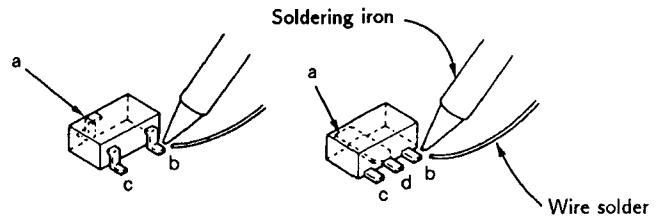
2) Place the component in position using tweezers.



3) Put a little solder on the tip of the soldering iron and solder the point "a" to fix the component.

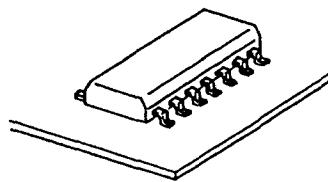
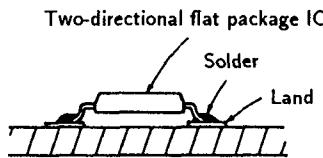


4) Bring the tip of the soldering iron and the wire solder close to the point to be soldered. Solder the points "b" → "c" (or "b" → "d" → "c") in order.

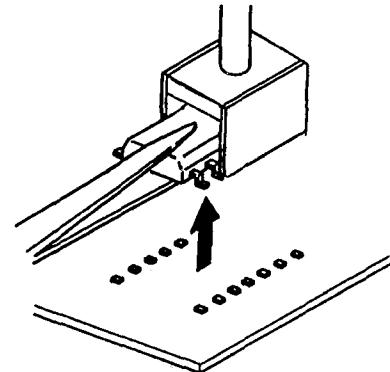


## 2-9-5. TWO-DIRECTIONAL FLAT PACKAGE IC

### MOUNT CONDITION

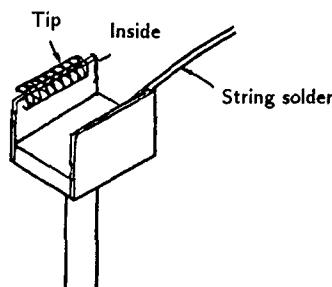


- 3) When the solder melts, lift the IC with a pair of tweezers and remove.

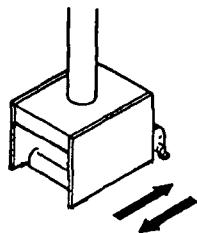


### REMOVAL

- 1) Apply some solder on the inside and the tip of the iron tip jig.

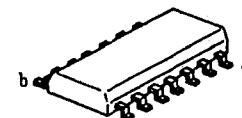


- 2) Place the iron tip jig over the IC, and move the jig to and fro as shown in the figure.

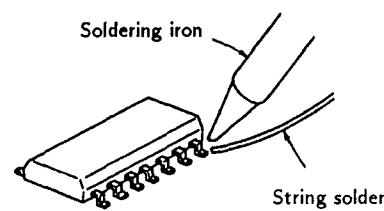


### INSTALLATION

- 1) Place the two-directional flat package IC at the appointed position, solder pins a and b on the diagonal, and fasten it.

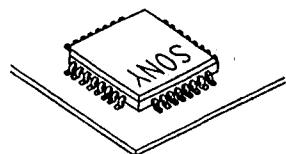
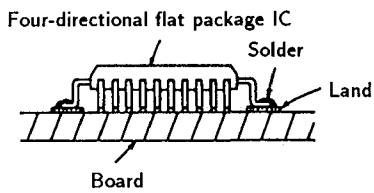


- 2) Solder the remaining pins with the soldering iron.



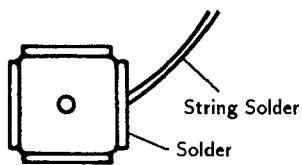
## 2-9-6. FOUR-DIRECTIONAL FLAT PACKAGE IC

## MOUNT CONDITION

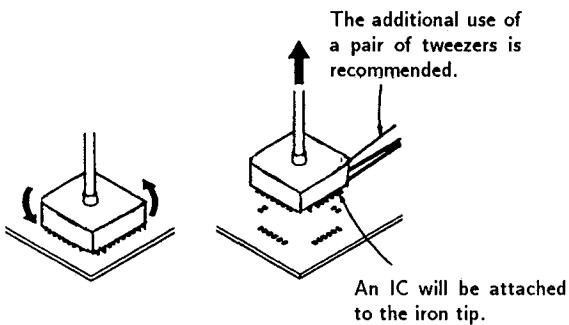


## REMOVAL

1) Apply solder on the tip of the iron tip jig.



2) Place the iron tip jig over the IC, wait about two to three seconds, rotate the iron slightly and lift it up.



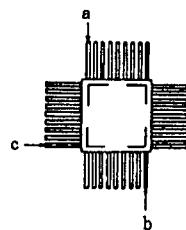
Note : For flat ICs of above 52P, the IC may not be completely attracted when the iron tip jig is lifted up. In these cases, use a pair of tweezers to remove.

## INSTALLATION

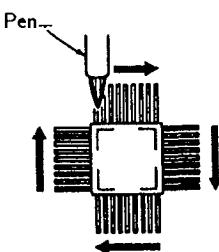
1) Place the four-directional flat package IC at the appointed position.



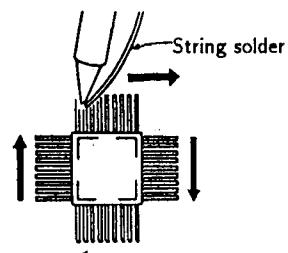
2) Apply a slight amount of solder on the iron tip, and solder the three sections in the order of a → b → c, and fix.



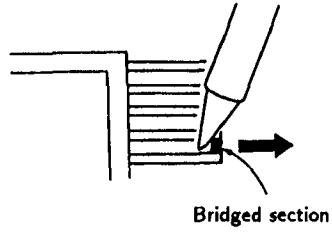
3) Apply a slight amount of flux with a pen on all four directions.



4) Apply solder on the iron tip and the string solder, and slide and solder in the directions of the arrows.



Note: 1) After soldering, if there are bridged sections, correct by sliding the soldering iron in the direction of the arrow.



If the bridges cannot be corrected using the above method, apply some flux with a pen and try again.

2) Soldering can be carried out more easily by sliding the iron tip near the tip of the IC leg. (Fig. A)

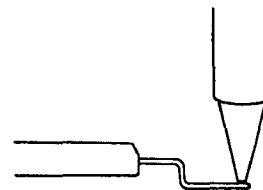


Fig. A

Be careful not to slide the bent sections of the leg as shown in Fig. B as soldering bridges will be formed.

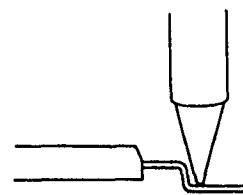


Fig. B

Exterior	Description	Part No.	Measure (mm)			
			A	B	C	D
	jig for removing 4-sided flat package IC	3-702-554-01 " 11 " 21 " 31 " 41 " 51	12.5 15.5 16.3 17.0 23.0 20.0	9.5 12.5 13.3 14.0 20.0 17.0	12.5 15.5 16.3 17.0 17.0 20.0	9.5 12.5 13.3 14.0 14.0 17.0
	jig for removing 2-sided flat package IC	3-702-555-01 " 11 " 21 " 31 " 41	6.0 6.0 7.0 9.0 9.0	5.0 10.0 12.5 15.2 18.0		
	soldering iron	3-702-552-01		55W 60g length 210mm		
	soldering holder	3-702-553-01				

## **SECTION 3**

### **SET-UP ADJUSTMENTS**

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

Controls and switch should be set as follows unless otherwise noted:

### **Preparations :**

- In order to reduce the influence of geomagnetism on the set's picture tube face it east or west.
- Switch on the set's power and degauss with the degausser.

### 3-1. BEAM LANDING

1. Input the white signal with the pattern generator.  
Contrast  
Brightness } normal
2. Set the pattern generator raster signal to green.
3. Move the deflection yoke to the rear and adjust with the purity control so that the green is at the center and the blue and the red take up equally sized areas on each side.  
(See Figures 3-1 through 3-3.)
4. Move the deflection yoke forward and adjust so that entire screen is green. (See Figure 3-1.)
5. Switch the raster signal to blue, then to red and verify the condition.
6. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
7. If the beam does not land correctly in all the corners, use a magnet to adjust it.  
(See Figure 3-4.)

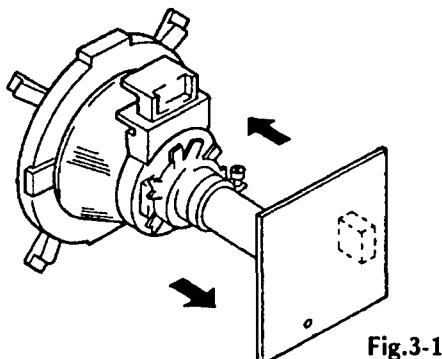


Fig.3-1

Perform the adjustments in order as follows :

1. Beam Landing
2. Convergence
3. Focus
4. White Balance

**Note : Test Equipment Required.**

1. Color-bar/Pattern Generator
2. Degausser
3. Oscilloscope

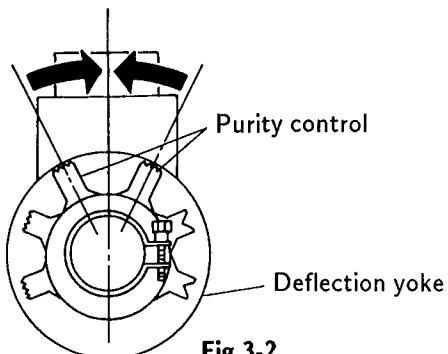


Fig.3-2

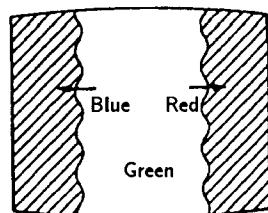


Fig.3-3

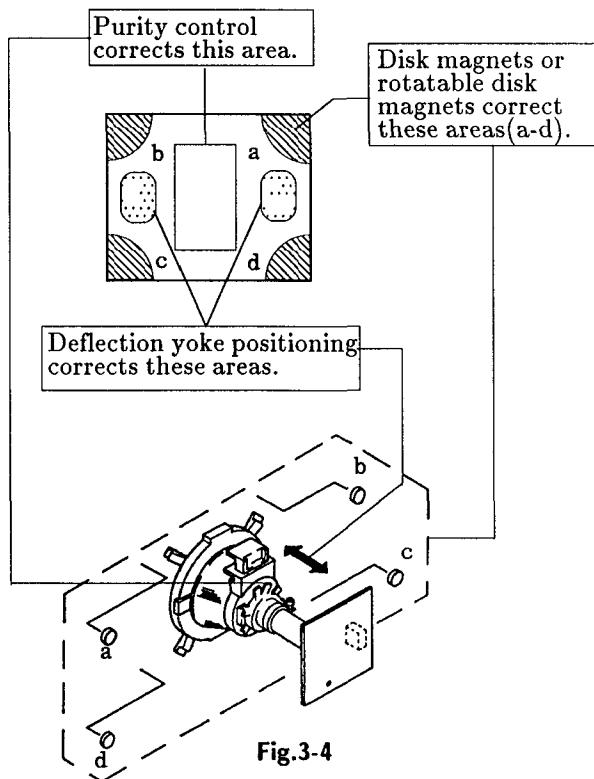


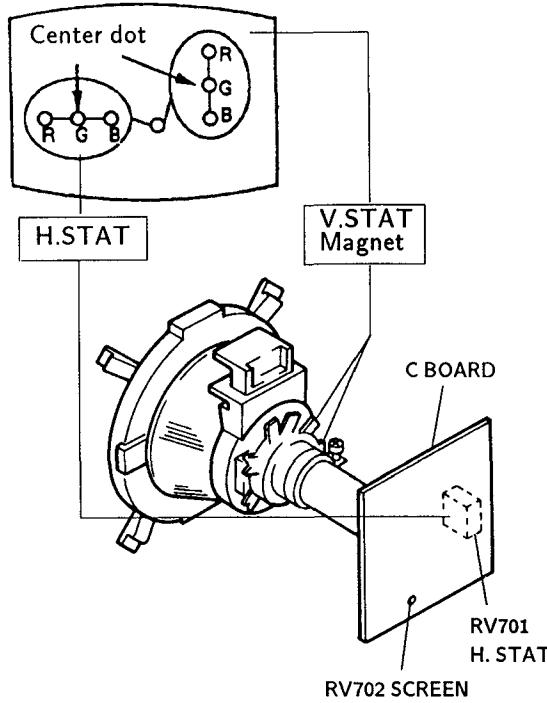
Fig.3-4

### 3-2. CONVERGENCE

#### Preparation :

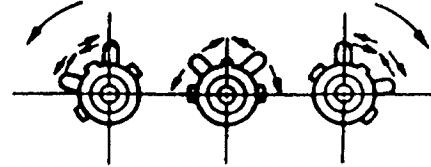
- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

#### (1) Horizontal and Vertical Static Convergence

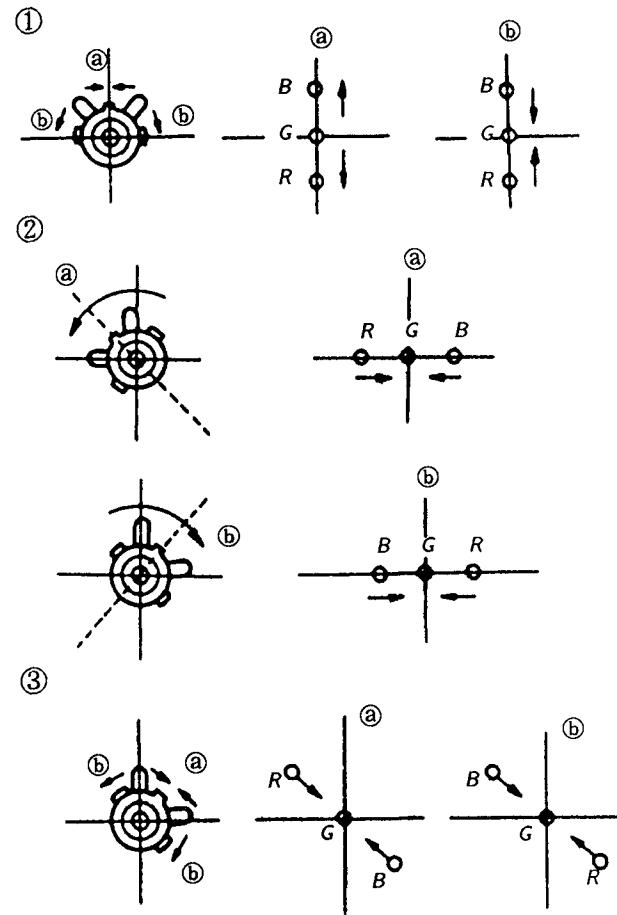


1. (Moving horizontally), adjust the H.STAT control so that the red, green, and blue points are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green, and blue points are on top of each other at the center of the screen.
3. If the H.STAT variable resistor cannot bring the red, green, and blue points together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V. STAT magnet in the manner given below.  
(In this case, the H.STAT variable resistor and the V. STAT magnet influence each other)

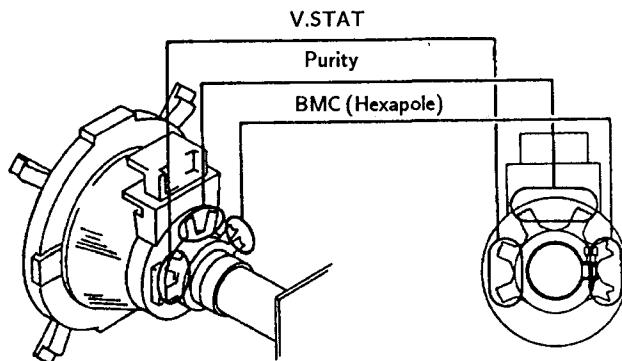
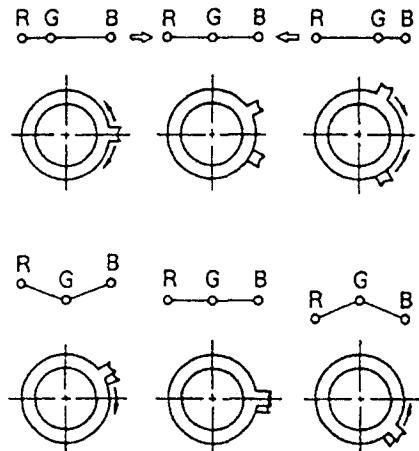
- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.



4. If the V.STAT magnet is moved in the direction of the ① and ② arrows, the red, green, and blue points move as shown below.



- Operation of BMC (Hexapole) Magnet



- The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking.

Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).

## (2) Dynamic Convergence Adjustment

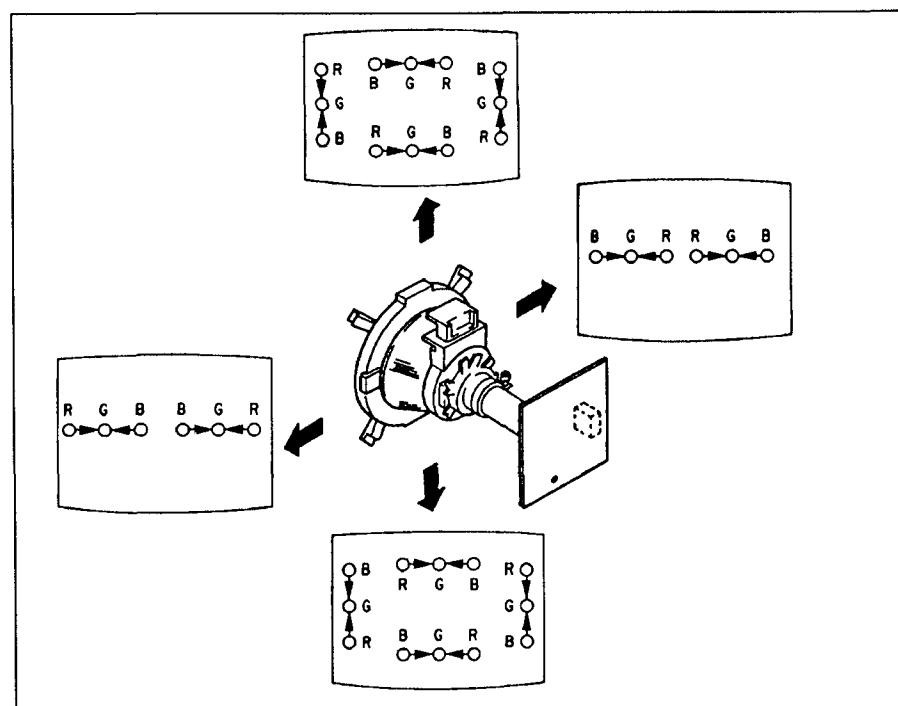
### Preparations :

- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.

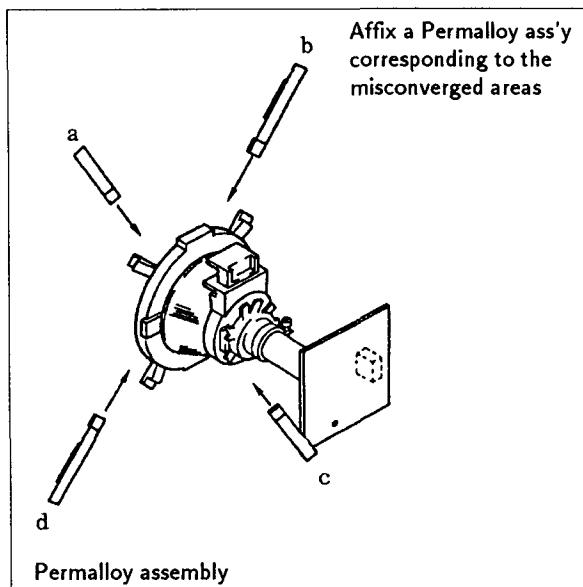
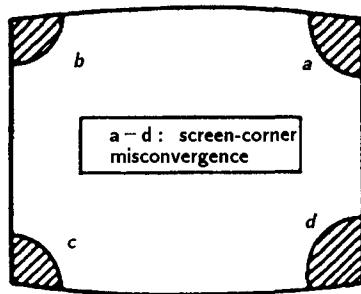
  1. Slightly loosen the deflection yoke screws.
  2. Remove the deflection yoke spacer.

### • Y separation axis correction magnet adjustment

1. Receive the cross-hatch signal, and adjust [PIX] to "MIN" and [BRT] to "standard".
2. Adjust the deflection yoke to the upright condition when it hits the CRT.
3. Adjust so that the Y separation axis correction magnet on the neck assembly is symmetrical at the top and bottom (open state).
4. Return the deflection yoke to its original position.
3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Install the deflection yoke spacer.

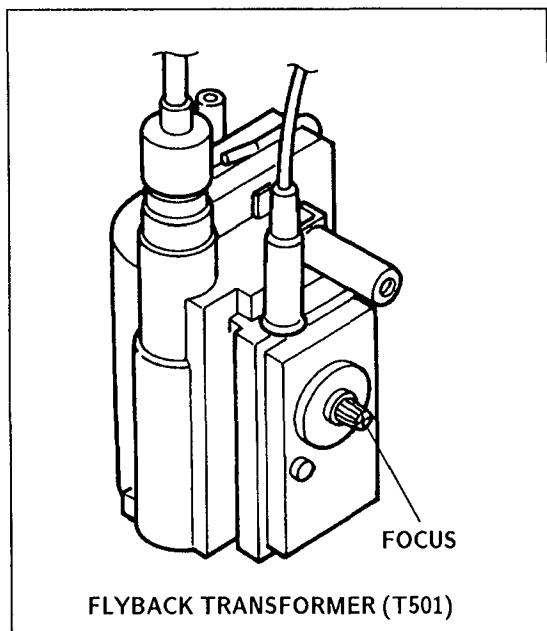


(3) Screen-corner Convergence



**3-3. FOCUS ADJUSTMENT**

Adjust FOCUS control on the flyback transformer for a best focus.



**3-4. G2 (SCREEN) AND WHITE BALANCE ADJUSTMENTS**

**1. G 2 (SCREEN) ADJUSTMENT(RV 702)**

1. Set the PICTURE and BRIGHTNESS to normal.
2. Confirm G 1 voltage is within  $30.0 \pm 5$  V.
3. Apply DC voltage of 180 V to the cathodes of R, G and B from DC stabilized power source.
4. While watching the picture, adjust the G2 control (RV 702) to the just the retrace line disappears.

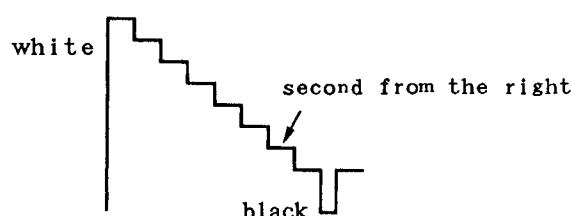
**2. WHITE BALANCE ADJUSTMENTS**

No.	Disp.	Item	Ave. Data
14	GAMP	Green Amp	20
15	BAMP	Blue Amp	17
16	GCUT	Green Cut-off	7
17	BCUT	Blue Cut-off	8
22	SBRT	Sub Bright	35

1. Input an entire white signal.
2. Set to service adjustment mode.
3. Set the PICTURE and BRIGHT to minimum.
4. Adjust with SBRT if necessary.
5. Select G CUT and B CUT with **1** and **4**.
6. Adjust with **3** and **6** for the best white balance.
7. Set the PICTURE and BRIGHT to maximum.
8. Select GAMP and BAMP with **1** and **4**.
9. Adjust with **3** and **6** for the best white balance.
10. Write into the memory by pressing **MUTING** then **ENTER**.

**3. SUB BRIGHT ADJUSTMENT**

1. Set to service mode.
2. Input a staircase signal of black and white from the pattern generator.
3. BRIGHTNESS ... RESET  
PICTURE ..... minimum
4. Select SBRT with **1** and **4** , and adjust SUB BRIGHT level with **3** and **6** so that the stripe second from the right is dimly lit.



## SECTION 4

### SAFETY RELATED ADJUSTMENTS

#### R511 CONFIRMATION METHOD (HOLD-DOWN CONFIRMATION) AND READJUSTMENTS

The following adjustments should always be performed when replacing the following components (marked with  on the schematic diagram).  
PM501, R338, R511, R632, R645, R650

①

##### 1. Preparation before confirmation

- 1) Remove R635 on the D board and connect a variable resistor (RV1: about  $4.7\text{k}\Omega$ - $10\text{k}\Omega$ ) between pin ① of IC601 and B+ line.
- 2) Supply  $130\pm 2.0\text{V}$  AC to with variable autotransformer.

##### 2. Hold-down operation confirmation

- 1) Turn the POWER switch ON, and receive entirely white signals and adjust ABL current to  $1760\pm 50\mu\text{A}$  with PICTURE and BRIGHT etc controls.
- 2) Increase B+ line voltage gradually by adjusting the resistor of RV1. Confirm that the minimum voltage is less than  $142.5\text{V}$  DC whereby the raster disappears during operation of hold-down circuit.

**NOTE:** When the hold-down circuit starts operating, switch OFF the POWER of the set immediately.

- 3) Turn the POWER switch ON, and receive dot signals and adjust ABL current to  $160\pm 50\mu\text{A}$  with PICTURE and BRIGHT etc controls.
- 4) Increase B+ line voltage gradually by adjusting the resistor of RV1. Confirm that the minimum voltage is less than  $145.0\text{V}$  DC whereby the raster disappears during operation of hold-down circuit.

**NOTE:** When the hold-down circuit starts operating, switch OFF the POWER of the set immediately.

##### 3. Hold-down readjustment

When step 2 is not satisfied, readjustment should be performed by altering the resistance value of R511 (a component marked with ).

#### R524 CONFIRMATION METHOD (HOLD-DOWN CONFIRMATION) AND READJUSTMENTS

The following adjustments should always be performed when replacing the following components (marked with  on the schematic diagram).  
IC601, PM501, D504, C598, R338, R509, R524, R632, R635, R645, T501

②

##### 1. Preparation before confirmation

- 1) Turn the POWER switch ON, and receive entirely white signals and set the PICTURE and BRIGHT controls to maximum.
- 2) Confirm that voltage of the check terminal of TP-85 (D BOARD) is more than  $114.0\text{V}$  DC when the set is operating normally with  $120.0\pm 2.0\text{V}$  AC supply.

##### 2. Hold-down operation confirmation

- 1) Turn the POWER switch ON, and receive entirely white signals and adjust ABL current to  $1760\pm 50\mu\text{A}$  with PICTURE and BRIGHT etc controls.
- 2) Apply DC voltage of over  $130.0\text{V}$  DC gradually to the check terminal of TP-85 (D BOARD) via 1T40 from the DC stabilized power source. Confirm that the minimum voltage is less than  $137.5\text{V}$  DC whereby the raster disappears during operation of hold-down circuit.

**NOTE:** When the hold-down circuit starts operating, switch OFF the POWER of the set immediately.

- 3) Turn the POWER switch ON, and receive dot signals and adjust ABL current to  $160\pm 50\mu\text{A}$  with PICTURE and BRIGHT etc controls.

- 4) Apply DC voltage of over  $130.0\text{V}$  gradually to the check terminal of TP-85 (D BOARD) via 1T40 from the DC stabilized power source. Confirm that the minimum voltage is less than  $138.0\text{V}$  DC whereby the raster disappears during operation of hold-down circuit.

**NOTE:** When the hold-down circuit starts operating, switch OFF the POWER of the set immediately.

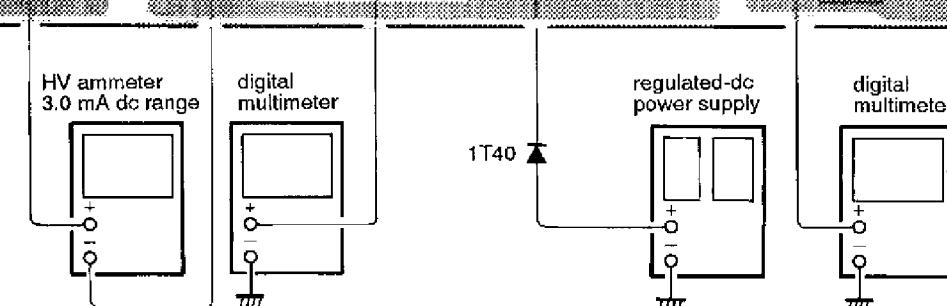
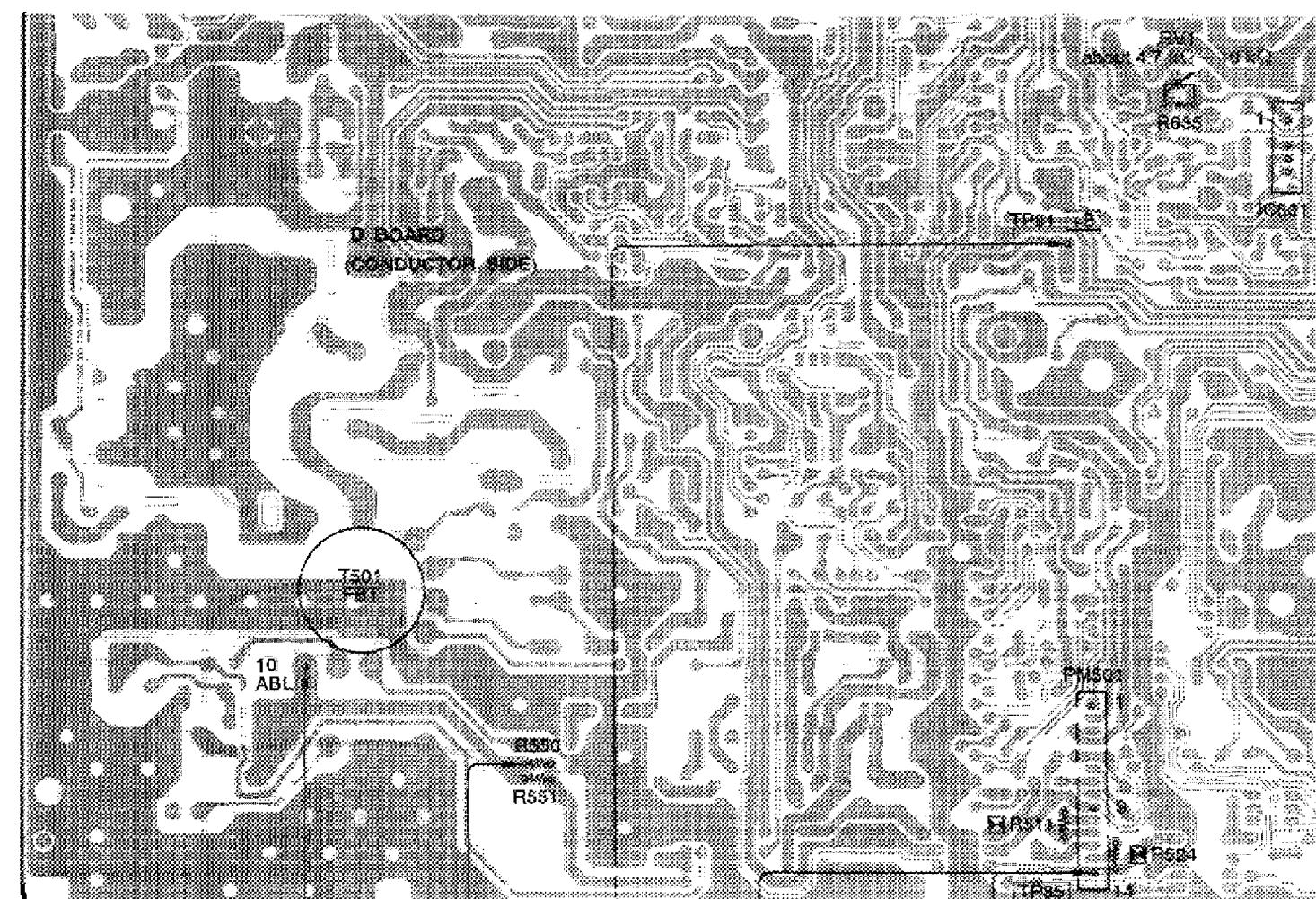
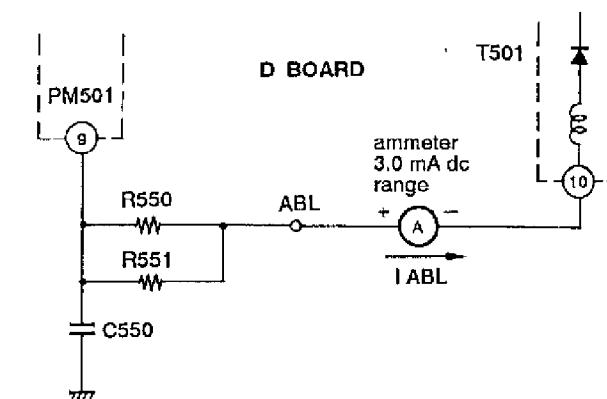
##### 3. Hold-down readjustment

When step 2 is not satisfied, readjustment should be performed by altering the resistance value of R524 (a component marked with ).

#### B+ VOLTAGE CONFIRMATION

The following adjustments should always be performed when replacing IC601 and R635.

- 1) Supply  $130\pm 2.0\text{V}$  AC to with variable autotransformer.
- 2) Receive entirely monoscope signal.
- 3) Set the PICTURE control and the BRIGHT controls in to initial reset.
- 4) Confirm the voltage of TP91 is less than  $137.0\text{V}$  DC.
- 5) If step 4) is not satisfied, replace IC601 and R635 repeat above steps.



## SECTION 5

### CIRCUIT ADJUSTMENTS

#### 5-1. ELECTRICAL ADJUSTMENT BY REMOTE COMMANDER

Use of Remote Commander can be performed circuit adjustments about this model.

NOTE : Test Equipment Required.

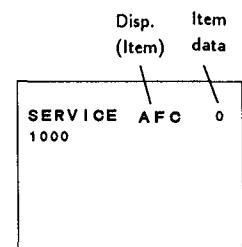
1. Pattern Generator
2. Frequency counter
3. Digital multimeter
4. Audio OSC

##### 1. METHOD OF SETTING THE SERVICE ADJUSTMENT MODE

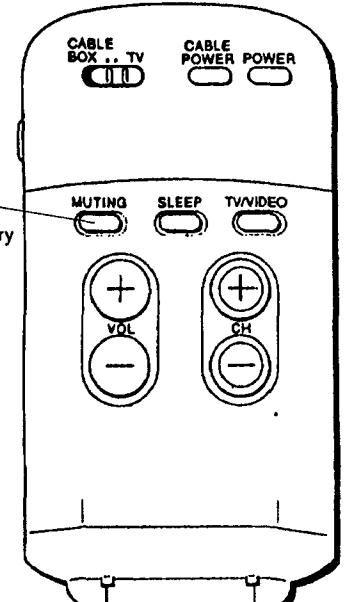
###### SERVICE MODE PROCEDURE

1. Standby mode.(Power off)
2. **DISPLAY** → **5** → **VOL (+)** → **POWER** on the Remote Commander. (Press each button within a second.)

###### SERVICE ADJUSTMENT MODE IN

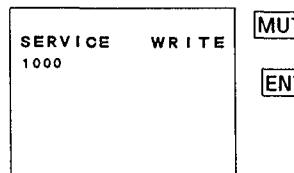


Write the memory

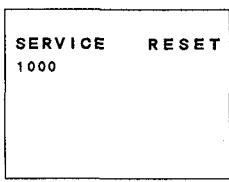


3. The CRT displays the item Being adjusted.
4. Press **1** or **4** on the Remote Commander to select the item.
5. Press **3** or **6** on the Remote Commander to change the data.
6. Press **MUTING** then **ENTER** to write into memory.

###### SERVICE ADJUSTMENT MODE MEMORY



7. Press **8** then **ENTER** on the Remote Commander to initialize.



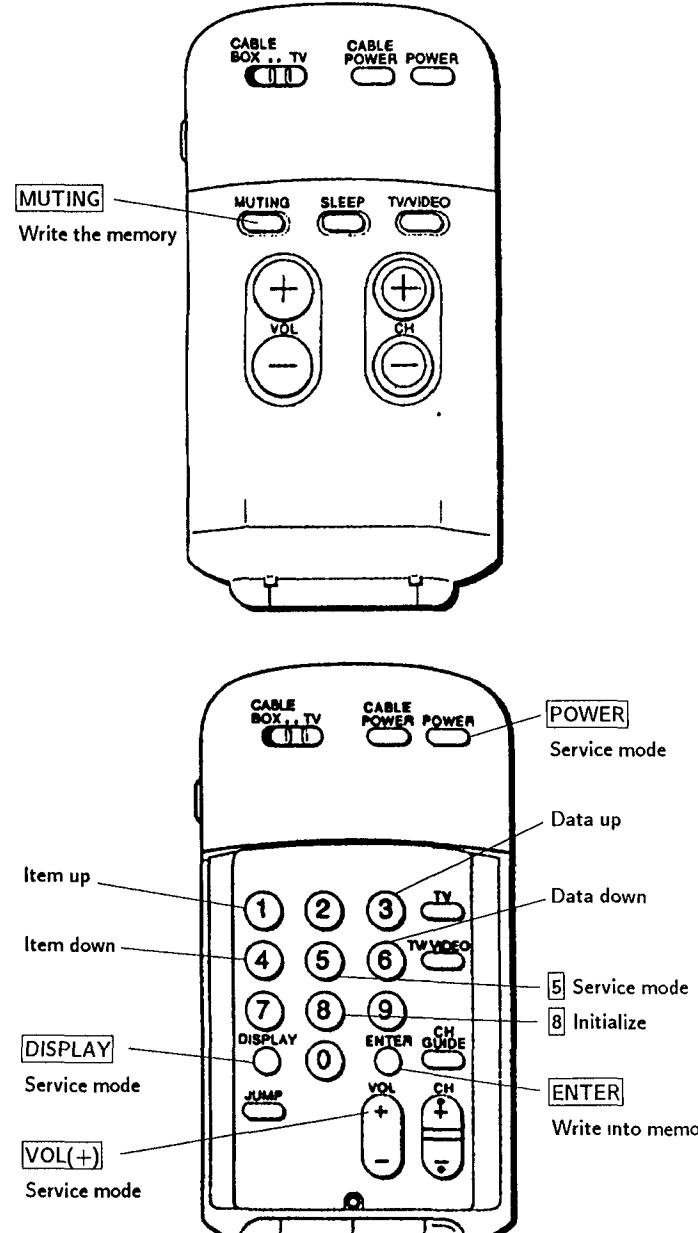
Carry out step 7) when adjusting IDs 0 to 4 and when replacing and adjusting IC102.

Factory original setting

#### 2. MEMORY WRITE CONFIRMATION METHOD

1. After adjustment, pull out the plug from AC outlet, and next place, plug in AC outlet again.
2. Turn the power switch ON and set to Service Mode.
3. Call the adjusted items again, confirm they were adjusted.

#### 3. ADJUST BUTTONS AND INDICATOR



RM-Y119

#### 4. AN ITEM OF ADJUSTMENTS

No.	Disp.	Item	Data range	Ave. data
1	AFC	AFC Loop Gain	0~3	* 0
2	HFRE	H. Frequency	0~127	70
3	VFRE	V. Frequency	0~31	16
4	VPOS	V. Center	0~31	17
5	VSIZ	V. Size	0~63	28
6	VLIN	V. Linearity	0~15	8
7	VSCO	V. Correction	0~15	6
8	HPOS	H. Center	0~15	6
9	HSIZ	H. Size	0~31	31
10	PAMP	Pin Amp	0~31	24
11	CPIN	Corner Pin	0~7	3
12	PPHA	Pin Phase	0~15	6
13	VCOM	V. Compensation	0~7	* 2
14	GAMP	Green Amp	0~31	20
15	BAMP	Blue Amp	0~31	17
16	GCUT	Green Cut Off	0~15	7
17	BCUT	Blue Cut Off	0~15	8
18	CROM	Chroma Trap	0~63	* 28
19	SPIX	Sub Contrast	0~63	20
20	SHUE	Sub Hue	0~63	33
21	SCOL	Sub Color	0~63	32
22	SBRT	Sub Bright	0~63	35
23	RGBP	RGB Picture	0~63	* 10
24	SHAP	Sharpness	0~15	* 7
25	VSMO	V Pull in Range	0, 1	* 0
26	REF	Reference line	0~3	* 2
27	ROFF	Red Out	0, 1	1
28	GOFF	Green Out	0, 1	1
29	BOFF	Blue Out	0, 1	1
30	ABLM	ABL Mode	0, 1	* 0
31	NOTC	Notch On/Off	0, 1	* 1
32	DRGB	OSD intensity	0, 1	* 0
33	VANG	V. Angle	0~63	0
34	DISP	Display Position	0~63	40
35	SVOL	Sub Volume	0~15	* 0
36	SBAL	Sub Balance	0~15	7
37	BASS	Sub Bass	0~15	* 8
38	TRE	Sub Treble	0~15	* 8
39	UYBO	Upper Y. Bow	0~63	—
40	LYBO	Lower Y. Bow	0~63	—
41	HAMP	H. Amp	0~63	—
42	HTIL	H. Tilt	0~63	—
43	UCBO	Upper C. Bow	0~63	—
44	UTIL	Upper Tilt	0~63	—
45	LCBO	Lower C. Bow	0~63	—
46	LTIL	Lower Tilt	0~63	—
47	DCSH	DC. Shift	0~63	—
48	PHPO	PinP H Position	0~127	76
49	PHUE	PinP Hue	0~31	* 0
50	ID-0	Model ID	0~127	by Model
51	ID-1	Model ID	0~127	by Model
52	ID-2	Model ID	0~127	by Model
53	ID-3	Model ID	0~127	by Model
54	ID-4	Model ID	0~127	by Model

\* Set-up value

Note : No. from 1 to 54 is to show adjustment order.

SERVICE	ID 0	64
1000	1000	0000

Please adjust the function values as shown below when IC 102 on M board was replaced.

###### KV-27V 55 (US/CND)

No.	Disp.	Disp.	Data
50	ID-0	1 1 1 1 0 0 0	120
51	ID-1	1 1 1 1 1 1 1	127
52	ID-2	1 0 0 1 0 0 0	72
53	ID-3	1 0 0 0 0 0 0	64
54	ID-4	0 0 1 0 0 0 0	16

###### KV-29V55M (E)

No.	Disp.	Disp.	Data
50	ID-0	1 1 1 1 0 0 0	120
51	ID-1	1 1 1 1 1 1 1	127
52	ID-2	0 1 0 1 0 0 0	40
53	ID-3	1 0 0 0 0 0 0	64
54	ID-4	0 0 1 0 0 0 0	16

## 5-2. M BOARD ADJUSTMENTS

### H.FREQUENCY ADJUSTMENT (HFRE)

1. Input a color-bar signal.
2. Set to Service adjustment Mode.
3. Connect a frequency counter to CN131 Pin⑬ (H. DRIVE) connector and ground.
4. Call the item of AFC, set to 3 level (free run).
5. Select HFRE with **1** and **4**.
6. Adjust with **3** and **6** for the  $15734 \pm 60$ Hz.
7. Call the item of AFC again, adjust the level "0".
8. Write into the memory by pressing **MUTING** then **ENTER**.

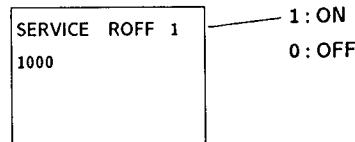
### V.FREQUENCY ADJUSTMENT (VFRE)

1. Select video 1 with no connecting the signal.
2. Set to Service adjustment Mode.
3. Connect the frequency counter across connector CN131 Pin⑦ (V. DRIVE) connector and ground.
4. Select VFRE with **1** and **4**.
5. Adjust with **3** and **6** for the  $55 \pm 0.5$ Hz.
6. Write the memory by pressing **MUTING** then **ENTER**.

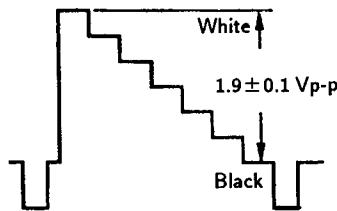
### SUB CONTRAST ADJUSTMENT (SPIX)

1. Input a color-bar signal.
2. Set to Service adjustment Mode.
3. Set the conditions as follows.

PICTURE	.....	MAX
COLOR	.....	MIN
BRIGHT	.....	CENTER
R OFF	.....	ON (1)
G OFF	.....	OFF (0)
B OFF	.....	OFF (0)



4. Connect an oscilloscope to CN703 Pin① (R OUT) of C board and ground.
5. Select SPIX with **1** and **4**.
6. Adjust with **3** and **6** for the  $1.9 \pm 0.1$ Vp-p.

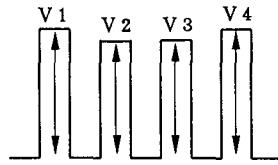


7. Write the memory by pressing **MUTING** then **ENTER**.
8. Return the following back to normal after adjustment.

PICTURE	.....	MAX
BRIGHT	.....	CENTER
COLOR	.....	CENTER
R OFF	.....	ON
G OFF	.....	ON
B OFF	.....	ON

**SUB HUE, SUB COLOR ADJUSTMENT (SHUE, SCOL)**

1. Input a color-bar signal.
2. Set to service adjustment mode.
3. Connect an oscilloscope to CN703 Pin③ (B OUT) of C board.
4. Select SHUE and SCOL with **1** and **4**.
5. Adjust with **3** and **6** for the V1=V4 (SCOR) and V2 =V3 (SHUE).



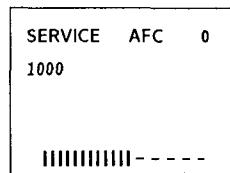
6. Increase the data of SCOL by 5 steps.
7. Write into the memory by pressing **MUTING** then **ENTER**.

**SUB BARANCE ADJUSTMENT (SBAL)**

1. Input a stereo signal.
2. Set to service adjustment mode.
3. Select SBAL with **1** and **4**.
4. Adjust with **3** and **6** for the best sound balance.
5. Write into the memory by pressing **MUTING** then **ENTER**.

**DISPLAY POSITION ADJUSTMENT (DISP)**

1. Input a color-bar signal.
2. Set to service adjustment Mode.
3. Select DISP with **1** and **4**.
4. Adjust with **3** and **6** for the bar center.
5. Write the memory by pressing **MUTING** then **ENTER**.

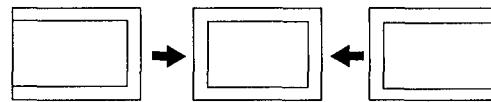


**H.CENTER ADJUSTMENT (H POS)**

Note: Perform this adjustment after H.FREQUENCY ADJUSTMENT (HFRE).

1. Input a cross-hatch signal.
2. Set the Service adjustment mode.
3. Select HPOS with **1** and **4**.
4. Adjust with **3** and **6** to the best horizontal center.
5. Write into the memory by pressing **MUTING** then **ENTER**.

**H. CENTER (HPOS)**



**H.SIZE ADJUSTMENT (HSIZ)**

1. Input a cross-hatch signal.
2. Set to service adjustment Mode.
3. Select HSIZ with **1** and **4**.
4. Adjust with **3** and **6** for best horizontal size.
5. Write into the memory by pressing **MUTING** then **ENTER**.

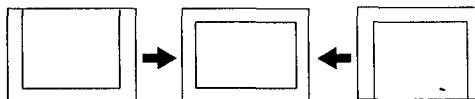
**H. SIZE (HSIZ)**



**V.CENTER ADJUSTMENT (VPOS)**

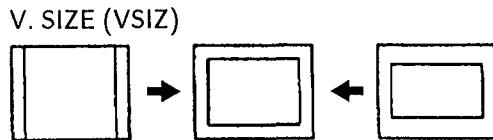
1. Input a cross-hatch signal.
2. Set to service adjustment Mode.
3. Select VPOS with **1** and **4**.
4. Adjust with **3** and **6** for the best vertical center.
5. Write into the memory by pressing **MUTING** then **ENTER**.

**V. CENTER (VPOS)**

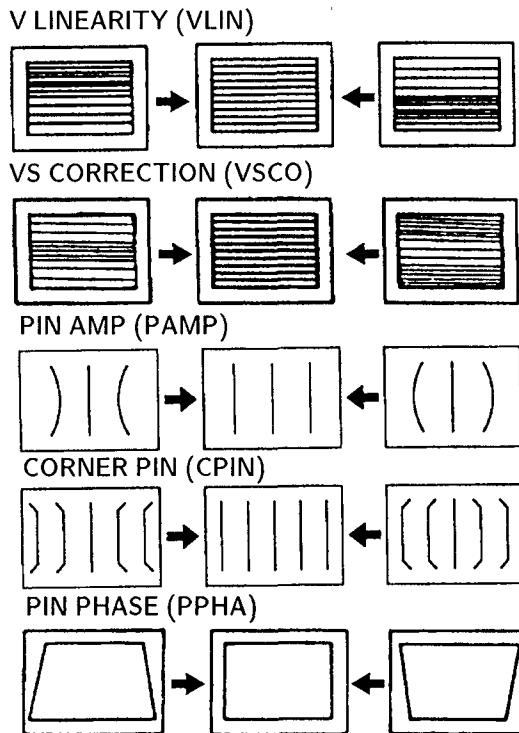


**V.SIZE ADJUSTMENT (VSIZ)**

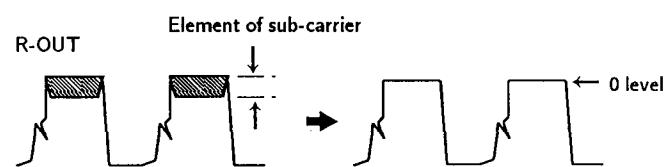
1. Input a cross-hatch signal.
2. Set to service adjustment Mode.
3. Select VSIZ with **1** and **4**.
4. Adjust with **3** and **6** for the best vertical size.
5. Write into the memory by pressing **MUTING** then **ENTER**.

**V LINEARITY(VLIN), VS CORRECTION(VSCO), PIN AMP(PAMP), CORNER PIN(CPIN), AND PIN PHASE(PPHA) ADJUSTMENTS**

1. Input a cross-hatch signal.
2. Set to Service adjustment Mode.
3. Select VLIN, VSCO, PAMP, CPIN, and PPHA with **1** and **4**.
4. Adjust with **3** and **6** for the best picture.
5. Write the memory by Pressing **MUTING** then **ENTER**.

**CROMA TRAP ADJUSTMENT (CROM)**

1. Input a red signal
2. Set to Service adjustment Mode.
3. Connect an oscilloscope CN703 Pin① (R OUT) of C board ground.
4. Select CROM with **1** and **4**.
5. Adjust with **3** and **6** for the 0 level.



6. Write the memory by pressing **MUTING** then **ENTER**.

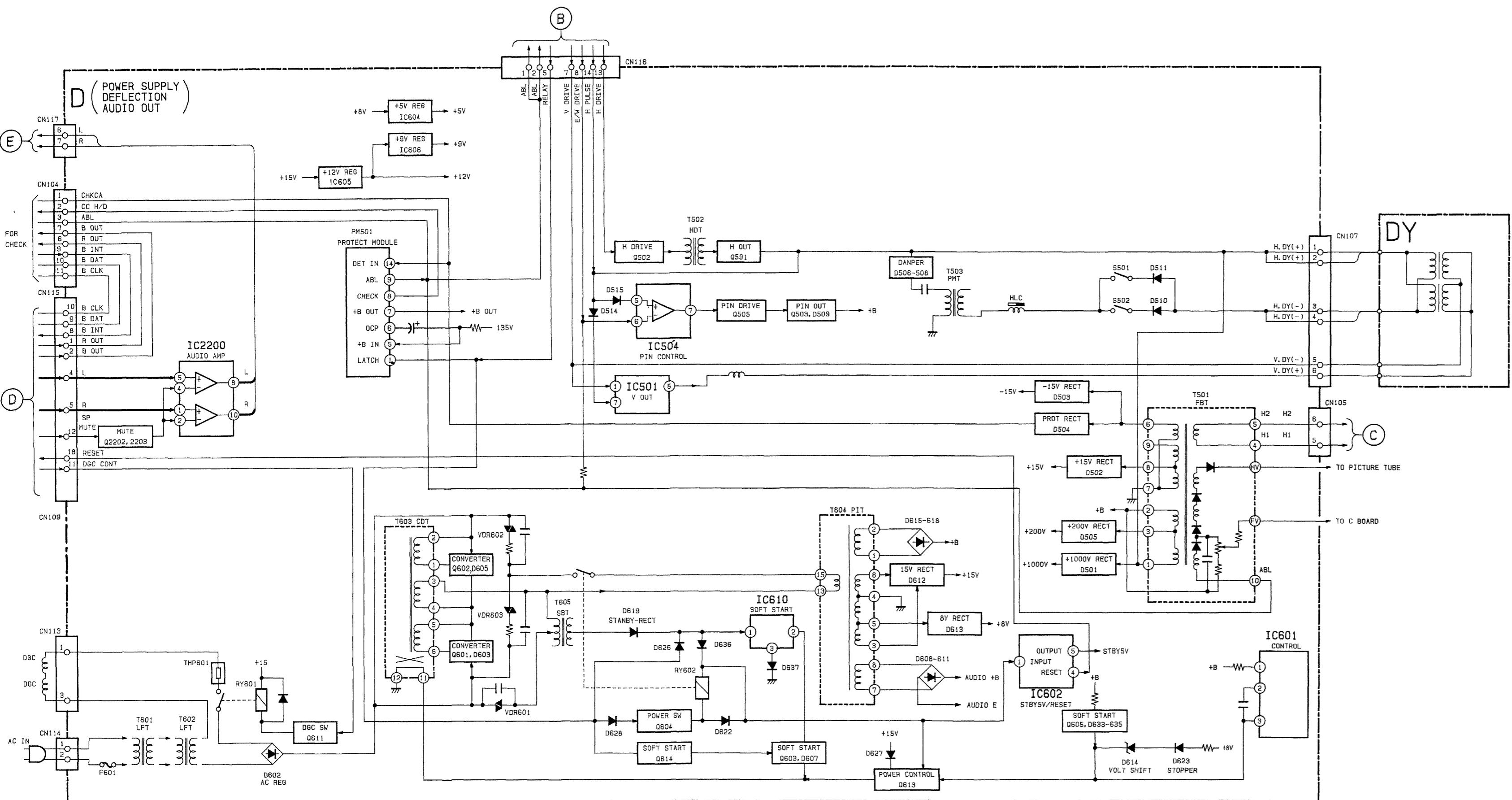
**5-3. P BOARD ADJUSTMENTS****P IN P H. POSITION (PHPO)**

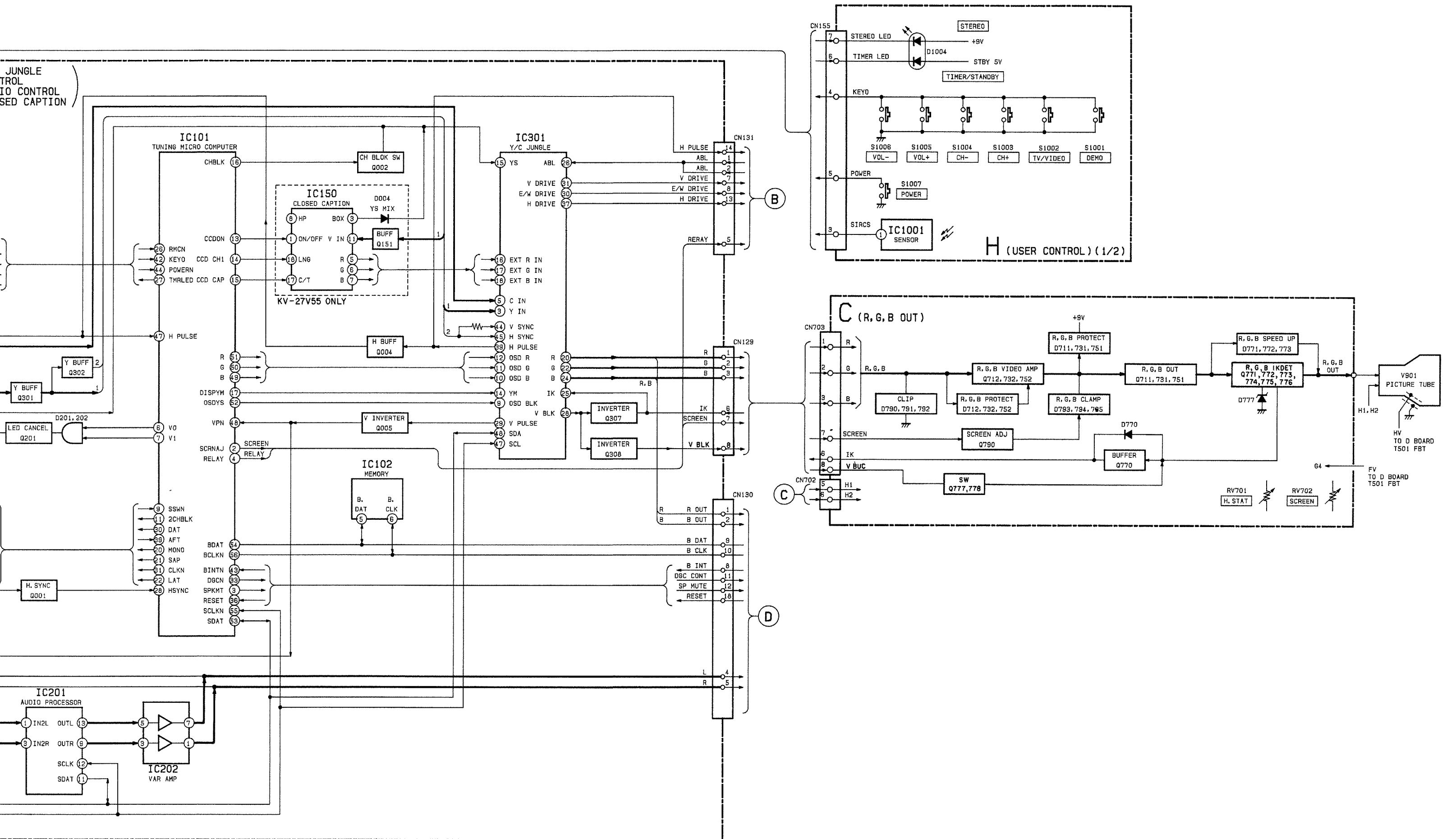
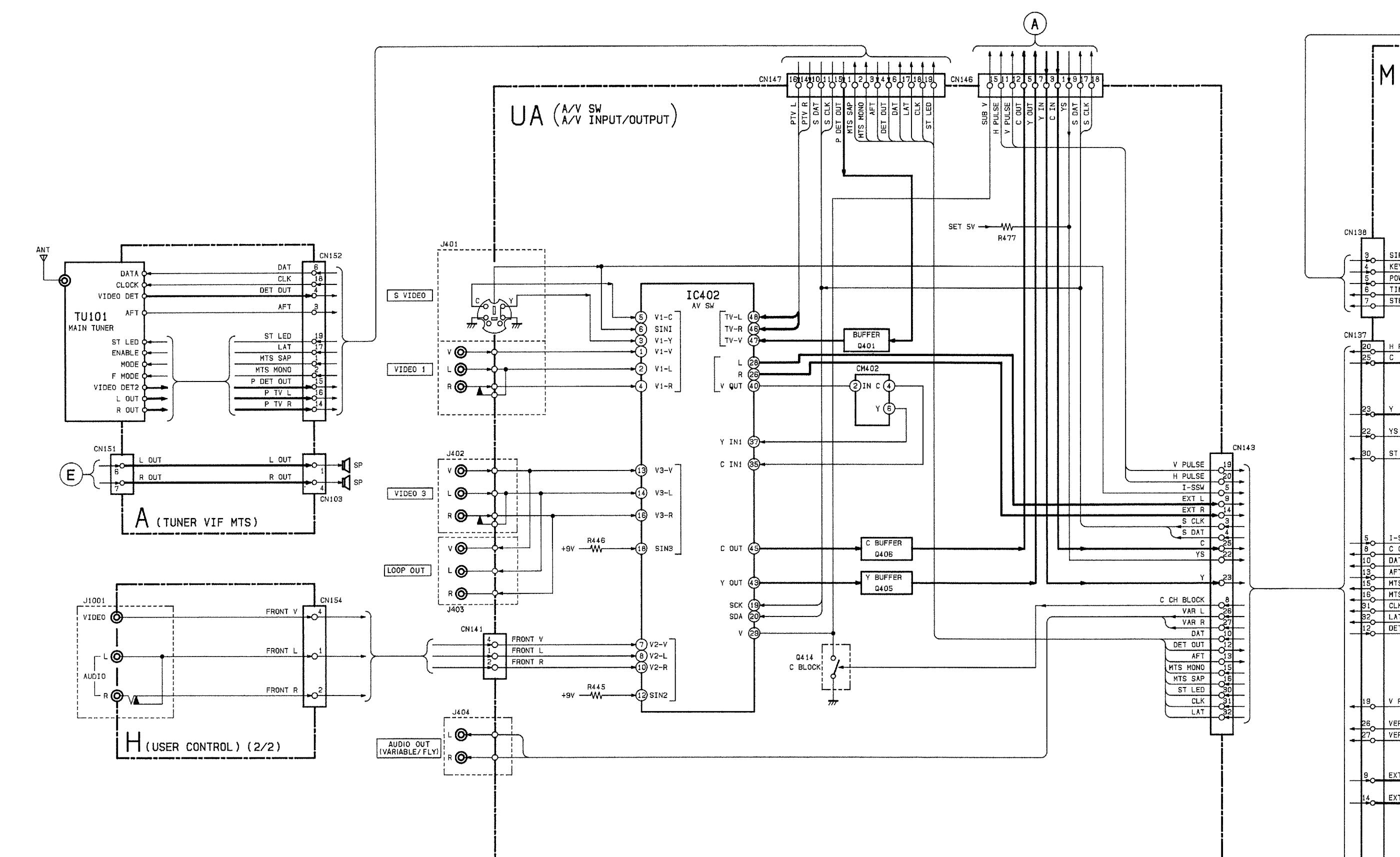
1. Input a color-bar signal
2. Set to Service adjustment Mode.
3. Select PHPO with **1** and **4**.
4. Adjust with **3** and **6** for the best balanced center position at 4 corner PinP display position.
5. Write the memory by pressing **MUTING** then **ENTER**.

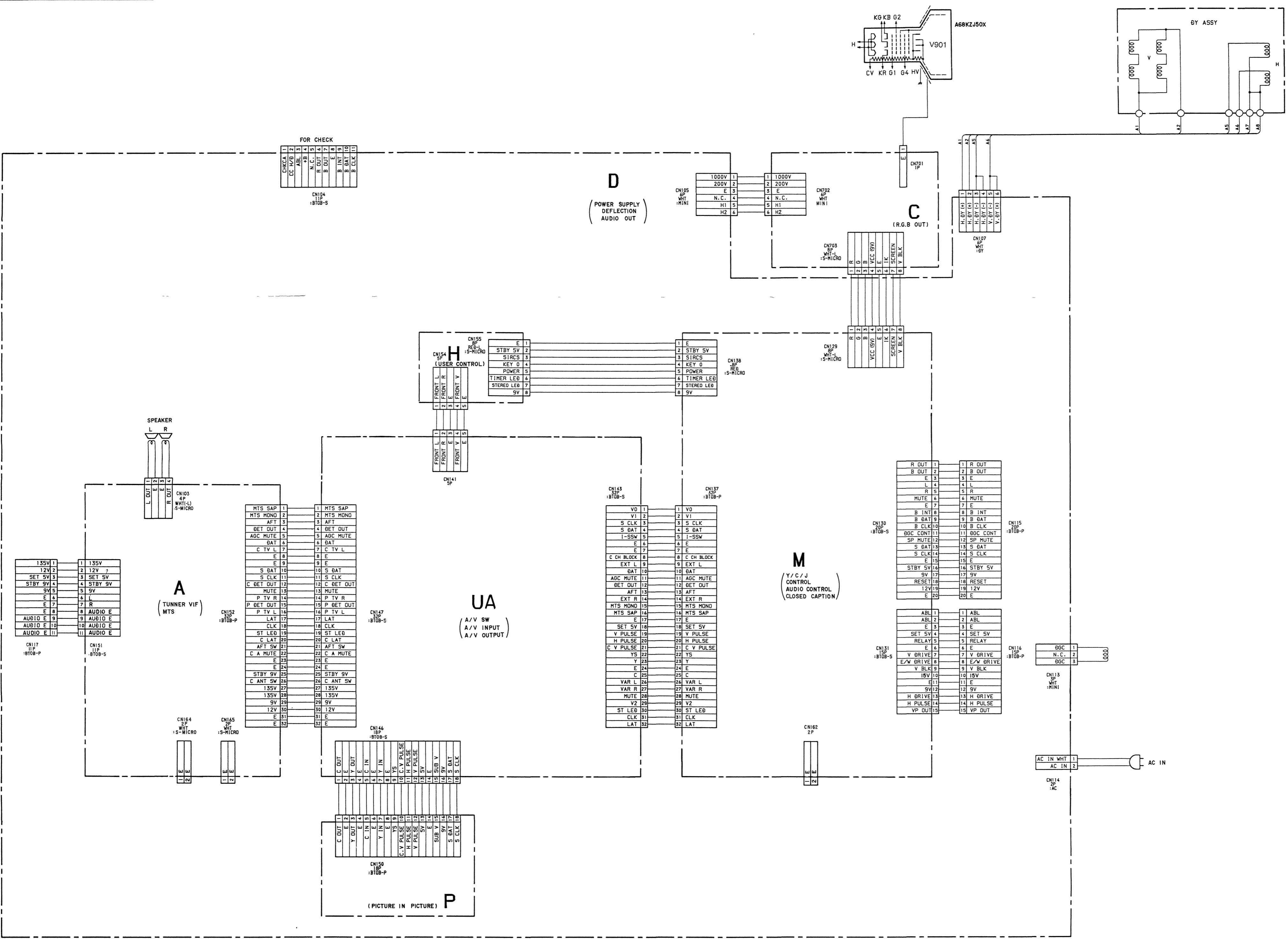
## **MEMO**

SECTION 6  
DIAGRAMS

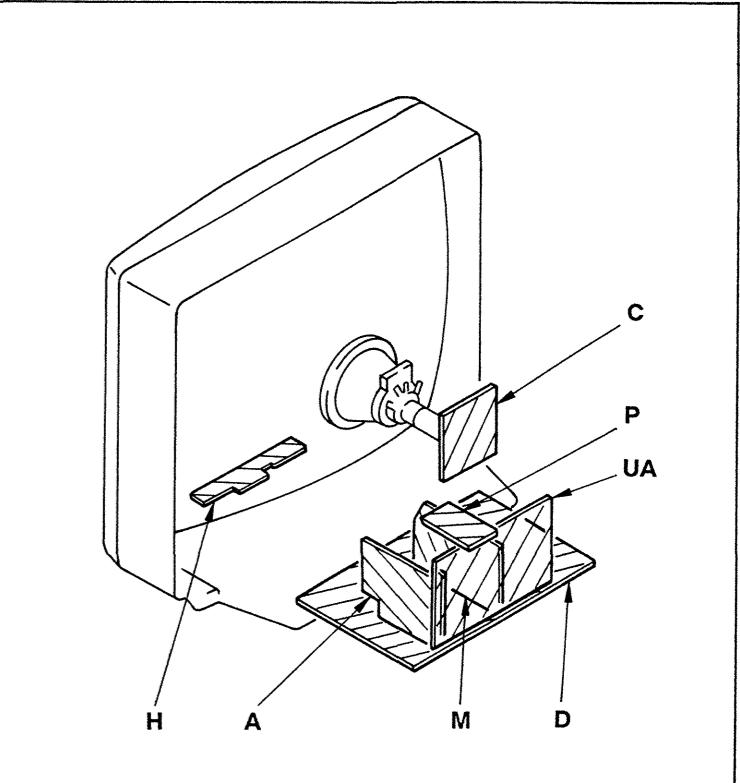
-1. BLOCK DIAGRAMS







### 6-3. CIRCUIT BOARDS LOCATION



## 6-4. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

**Note:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\mu\text{F}$   
 $50 \text{ WV}$  or less are not indicated except for electrolytic and tantalums.
- All resistors are in ohms.  
 $\text{k}\Omega = 1000 \Omega$ ,  $\text{M}\Omega = 1000\text{K}\Omega$
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch: 5 mm
Rating electrical power $1/4 \text{ W}$

-  : nonflammable resistor.
-  : fusible resistor.
-  : internal component.
-  : panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
-  : earth chassis.

**Note:** The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une  
marque **▲** sont critiques pour la sécurité. Ne les  
remplacer que par une pièce portant le numéro  
spécifié.

## Reference information

Reference Information		
RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: ✽	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR

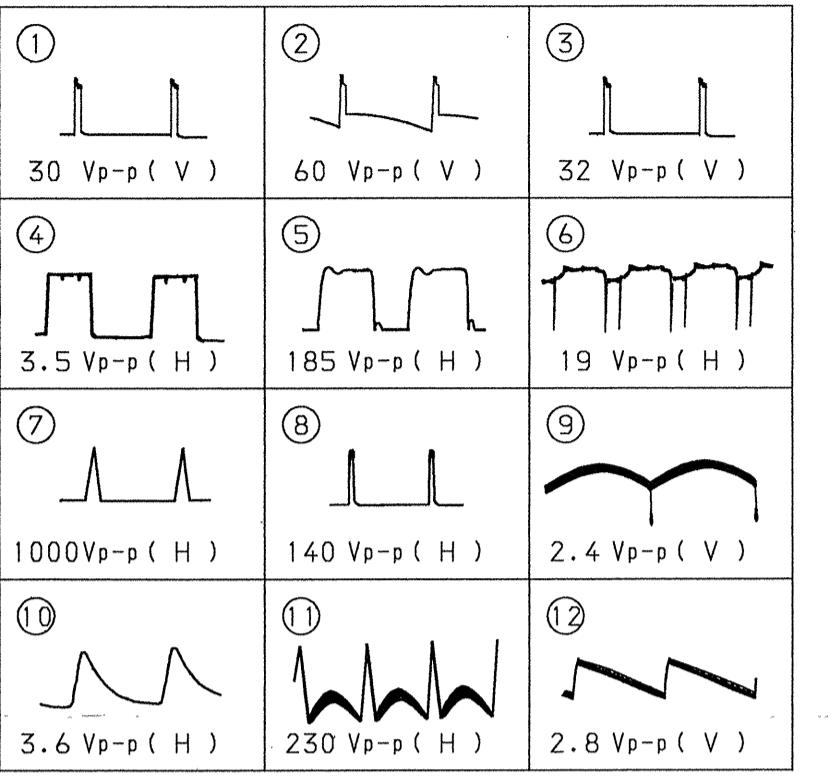
- Readings are taken with a color-bar signal input.
- Readings are taken with a  $10M\Omega$  digital multimeter.
- Voltage are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
- Circled numbers are waveform references.
- : B+ bus.
- : signal path. (RF)
- The components identified by  in this basic schematic diagram have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation.  
Should replacement be required, replace only with the value originally used.
- When replacing components identified by  , make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by  and repeat the adjustment until the specified value is achieved.  
(Refer to R511, R524 adjustment on page 39.)
- When replacing the part in below table, be sure to perform the related adjustment.

Part replaced (☒)	Adjustment (☒)
PM501, R338, R511, R632, R645, R650	R511
IC601, PM501, D504, C598, R338, R509, R524, R632, R635, R645, T501	R524

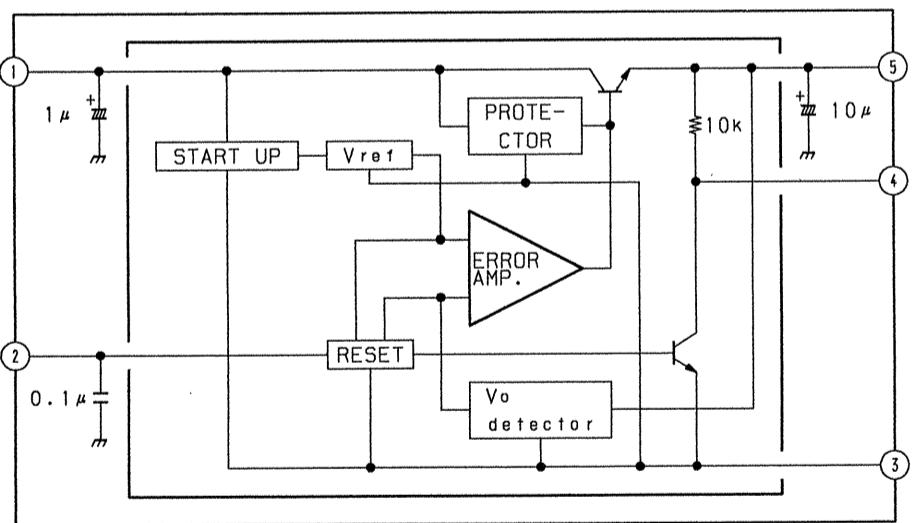
## (1) Schematic Diagram of D Board

## • D BOARD WAVEFORMS

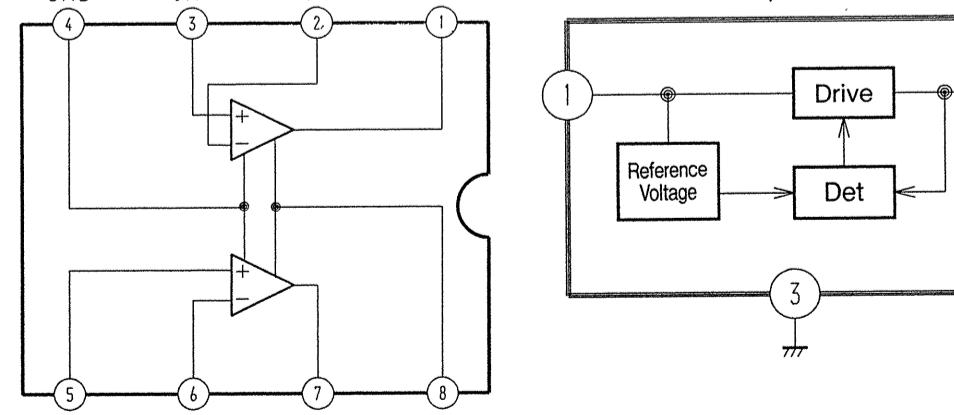
B-SS 4442&lt;U..&gt;- Ø &lt;WAVELIST&gt;



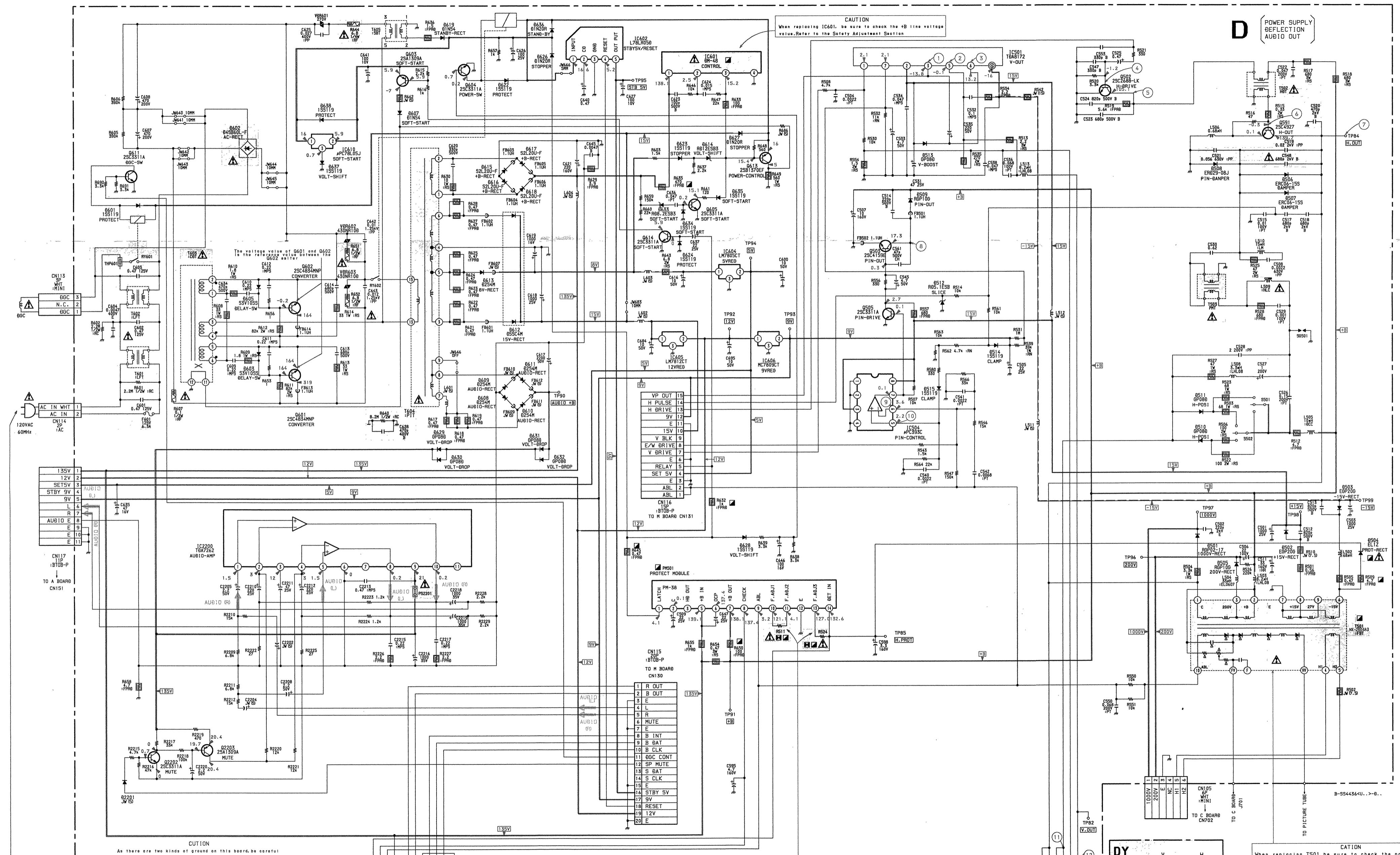
## D Board IC602 L78LR05D-MA



## D Board IC504 µPC393C

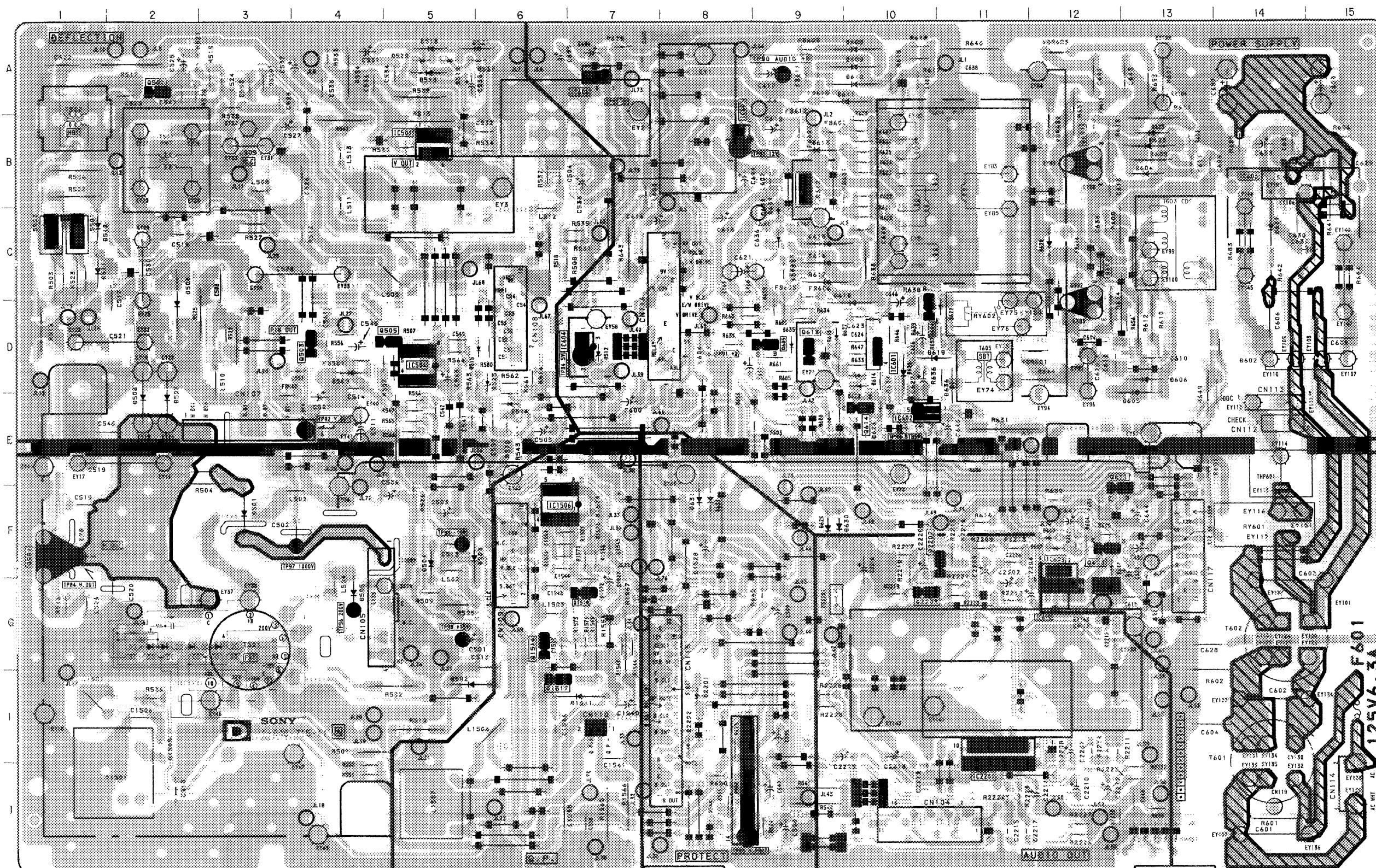


## D Board IC610 µPC78L05J



— D Board —

**D** POWER SUPPLY  
DEFLECTION  
AUDIO OUT



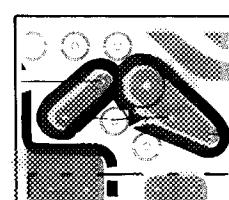
• D BOARD

IC	DIODE
IC501	B - 5
IC504	D - 5
IC601	D - 10
IC602	E - 10
IC604	D - 7
IC605	B - 8
IC606	A - 7
IC610	G - 12
IC2200	I - 11
	D501
	D502
	D503
	D504
	D505
	D506
	D507
	D508
	D509
	D510
	D511
	D512
	D513
	D514
	D515
	D601
	D602
	D603
	D605
	D607
	D608
	D609
	D610
	D611
	D612
	D613
	D614
	D615
	D616
	D617
	D618
	D619
	D622
	D623
	D624
	D626
	D627
	D628
	D629
	D630
	D631
	D632
	D633
	D634
	D635
	D636
	D637
	D638
<b>TRANSISTOR</b>	
Q502	A - 2
Q503	D - 4
Q505	D - 5
Q591	F - 1
Q601	B - 12
Q602	C - 12
Q603	F - 12
Q604	D - 10
Q605	D - 9
Q611	F - 12
Q613	D - 9
Q614	E - 10
Q2202	F - 10
Q2203	G - 10

---

**NOTE:**

**NOTE:**  
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.



A

[TUNER VIF, MTS]

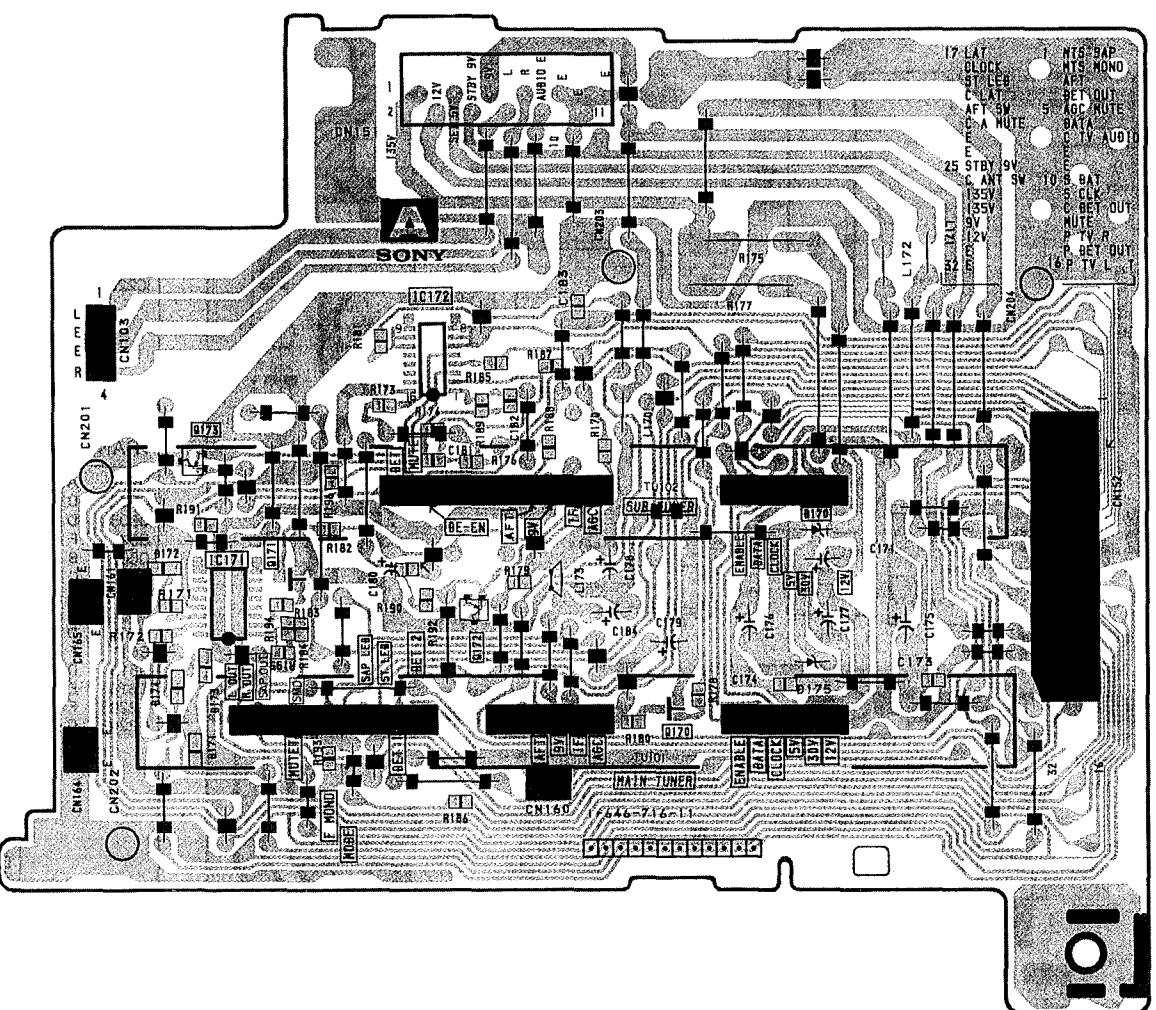
H

[USER CONTROL]

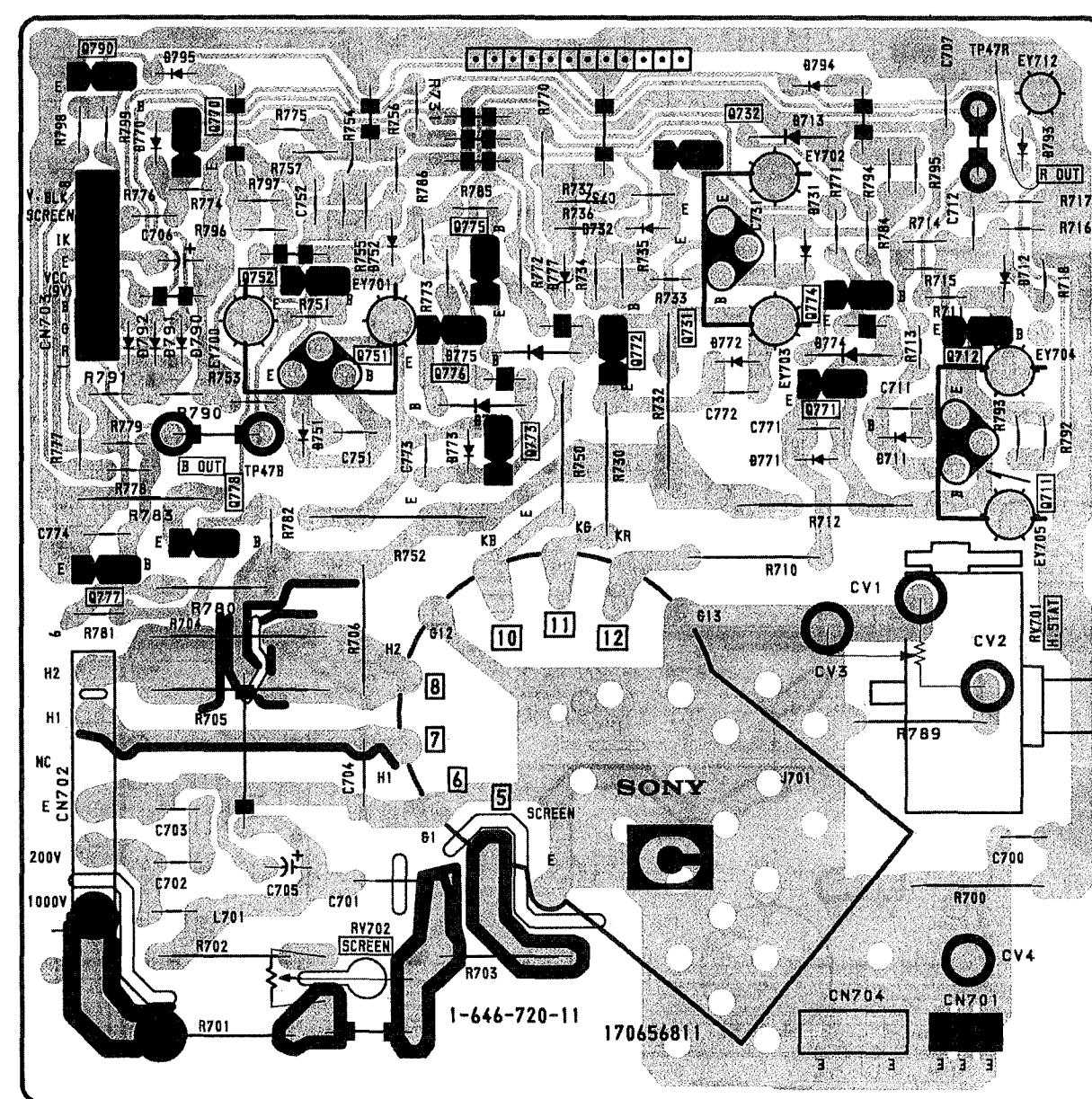
C

[R, G, B OUT]

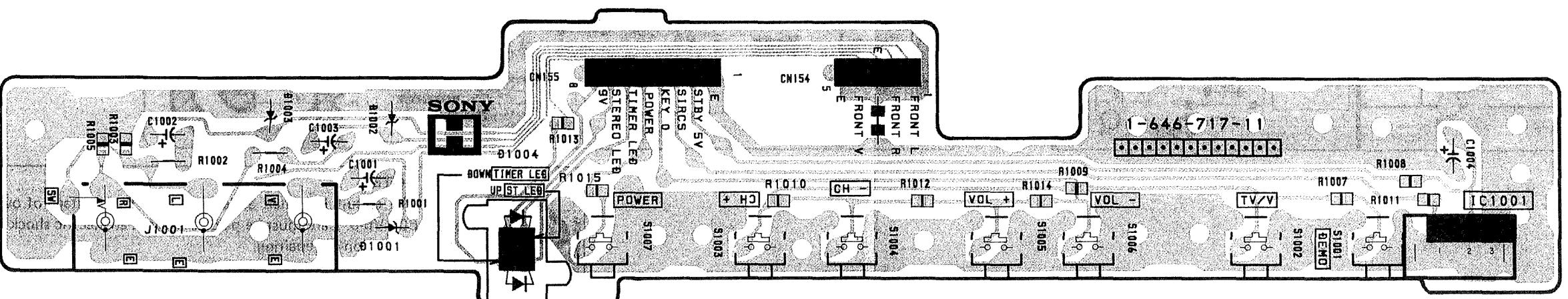
- A Board -



- C Board -



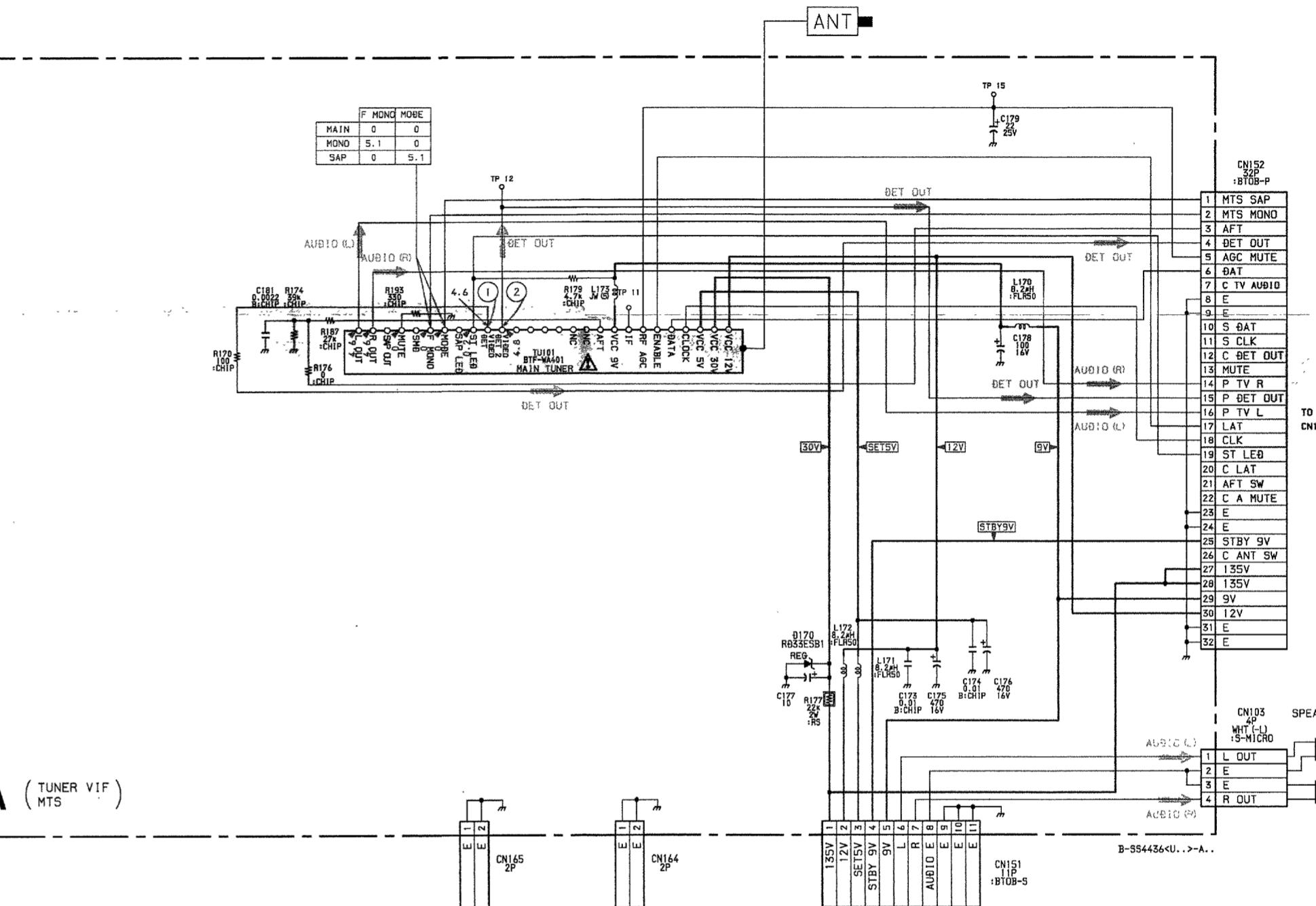
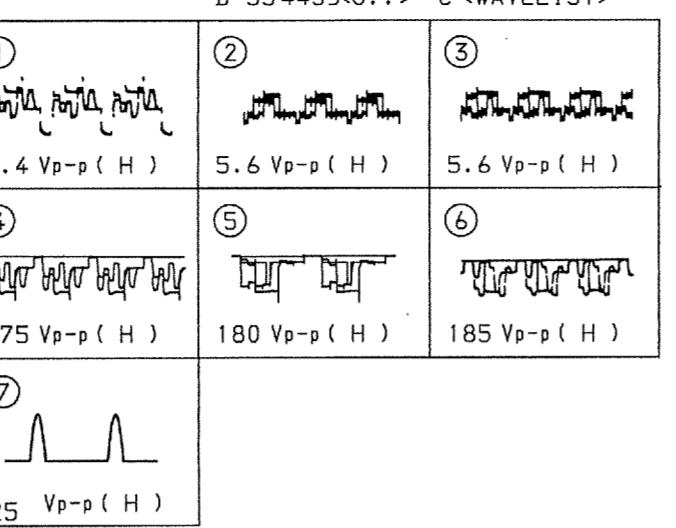
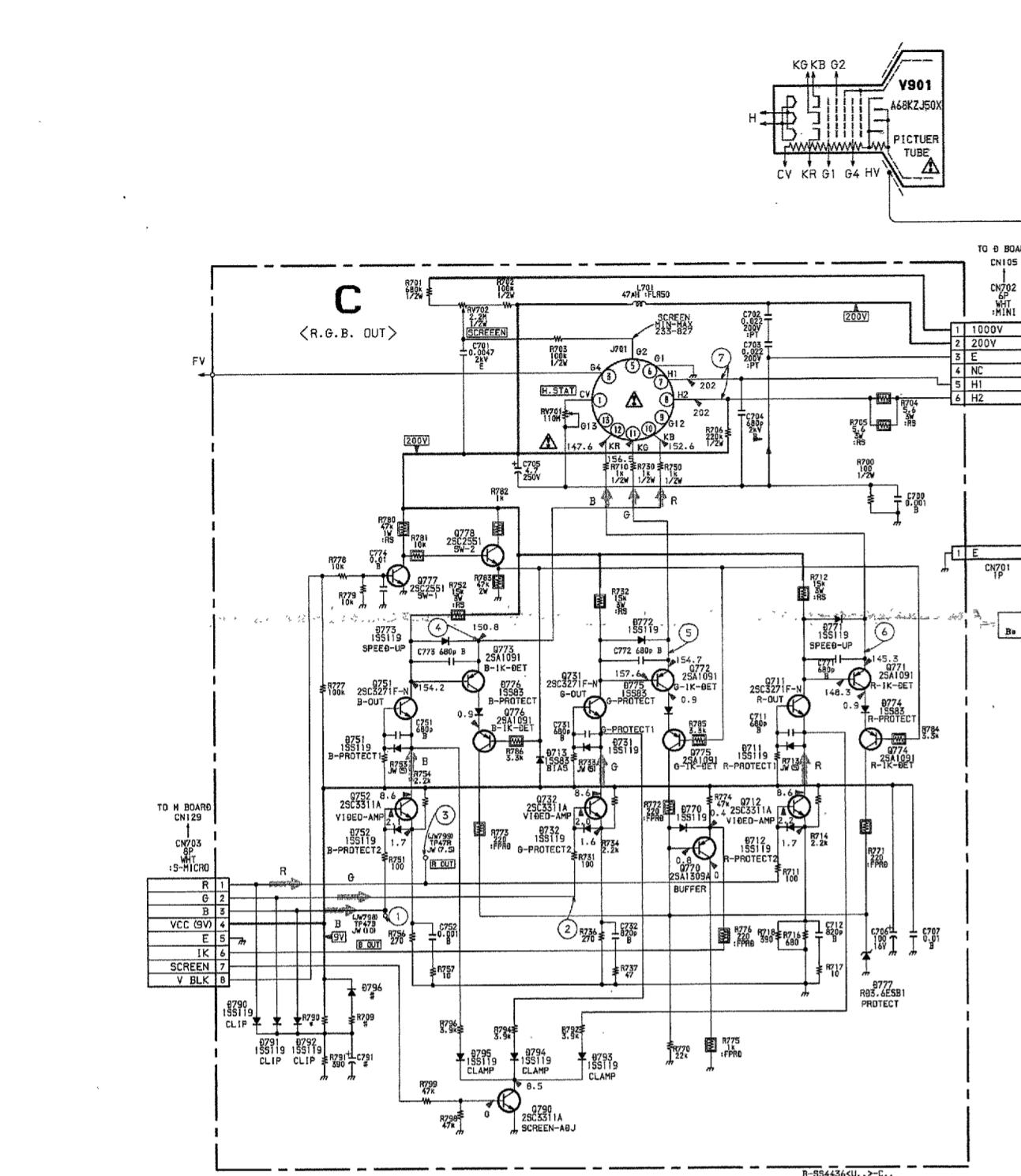
- H Board -



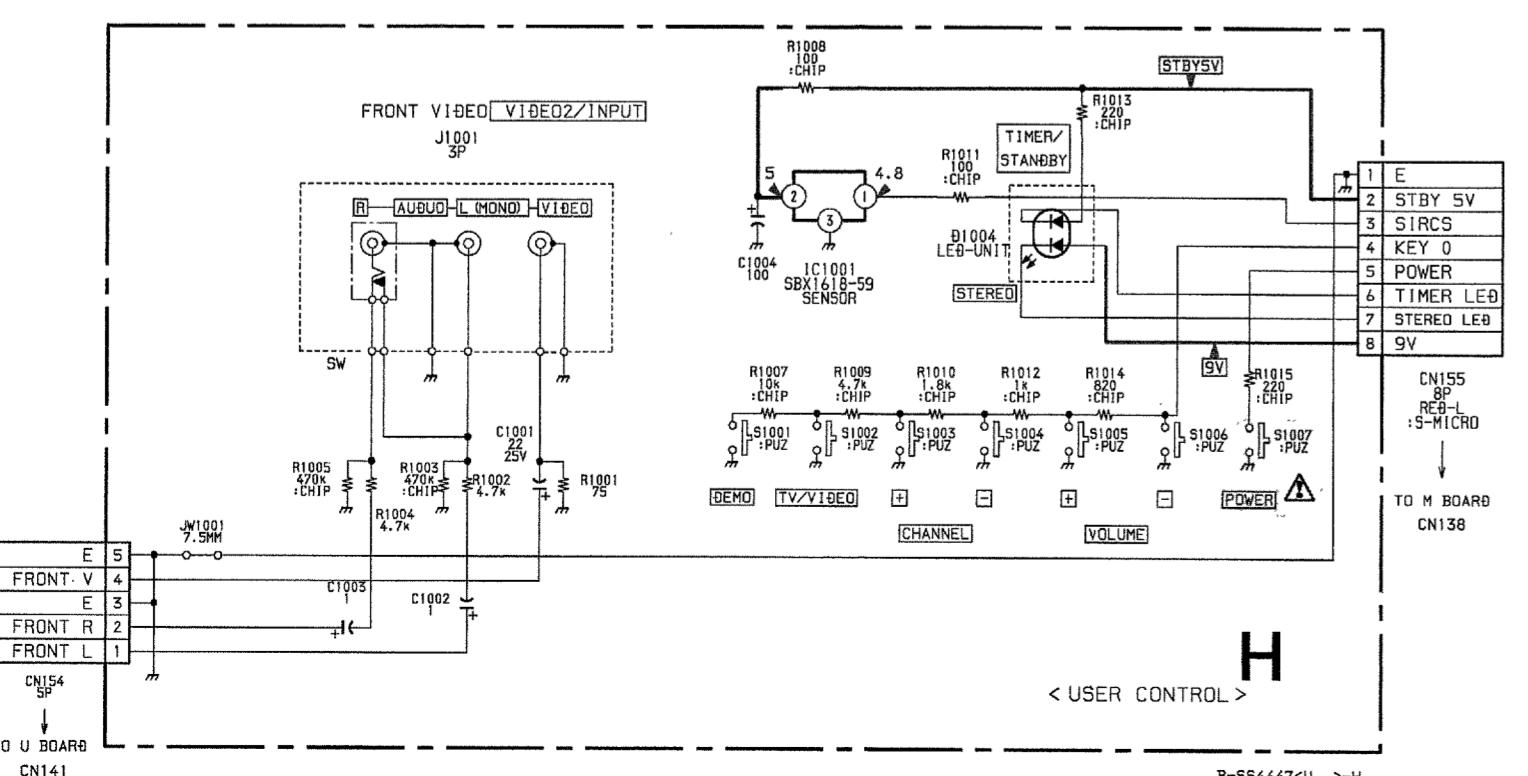
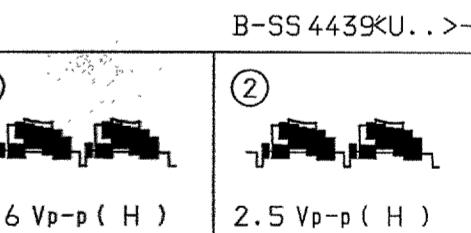
NOTE:

The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

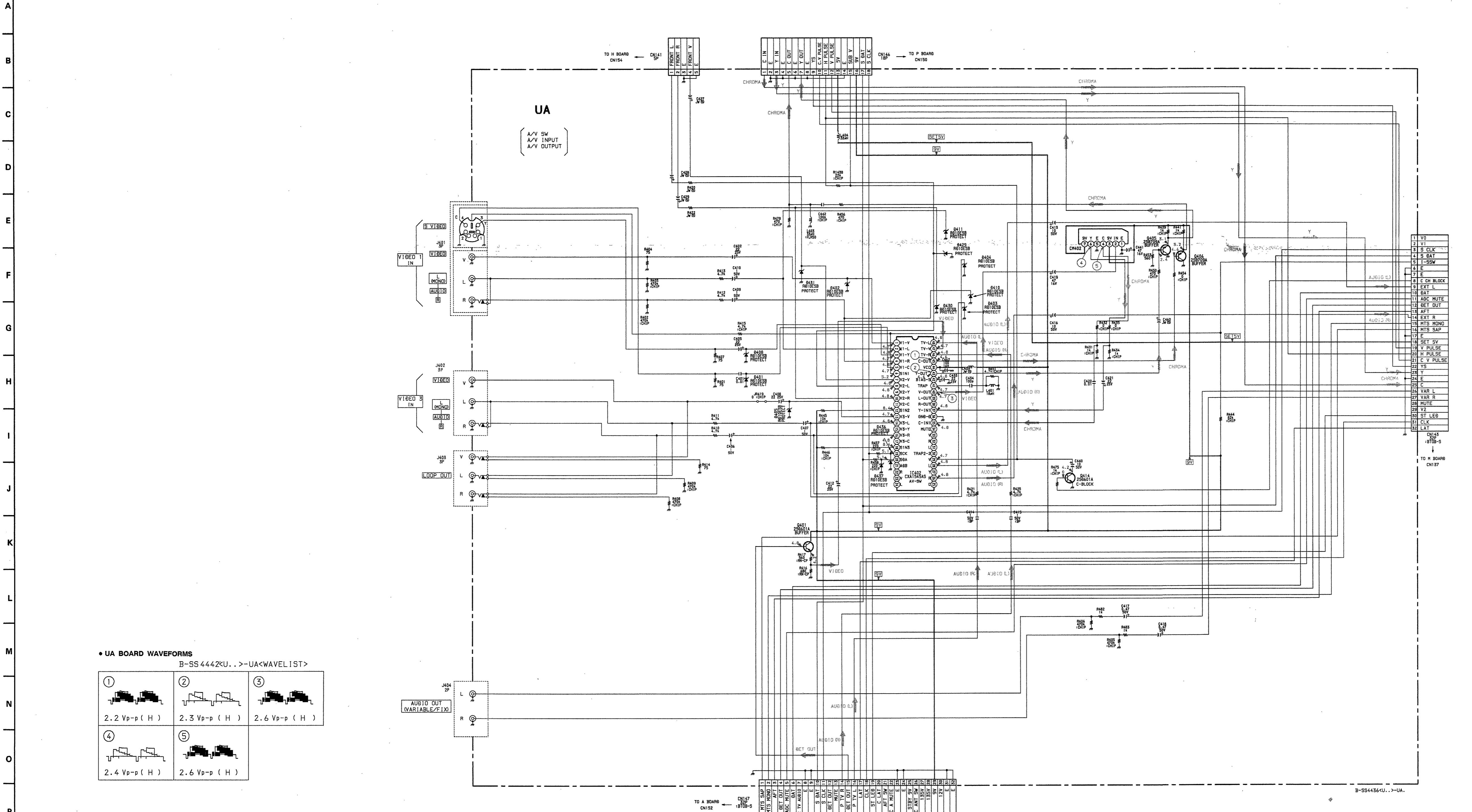
## (2) Schematic Diagram of A, C and H Boards



- A BOARD WAVEFORMS

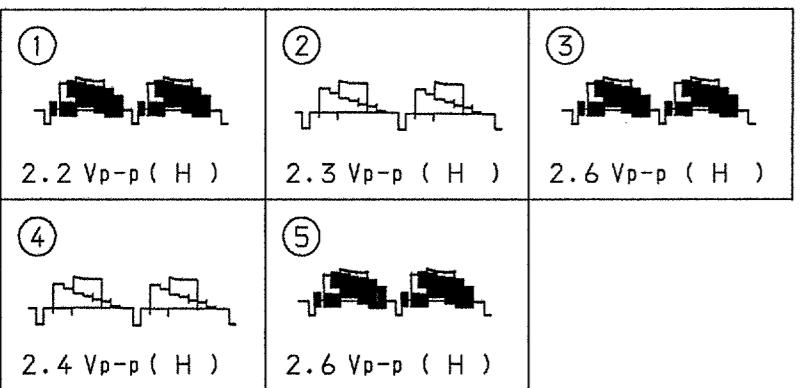


### (3) Schematic Diagram of UA Board



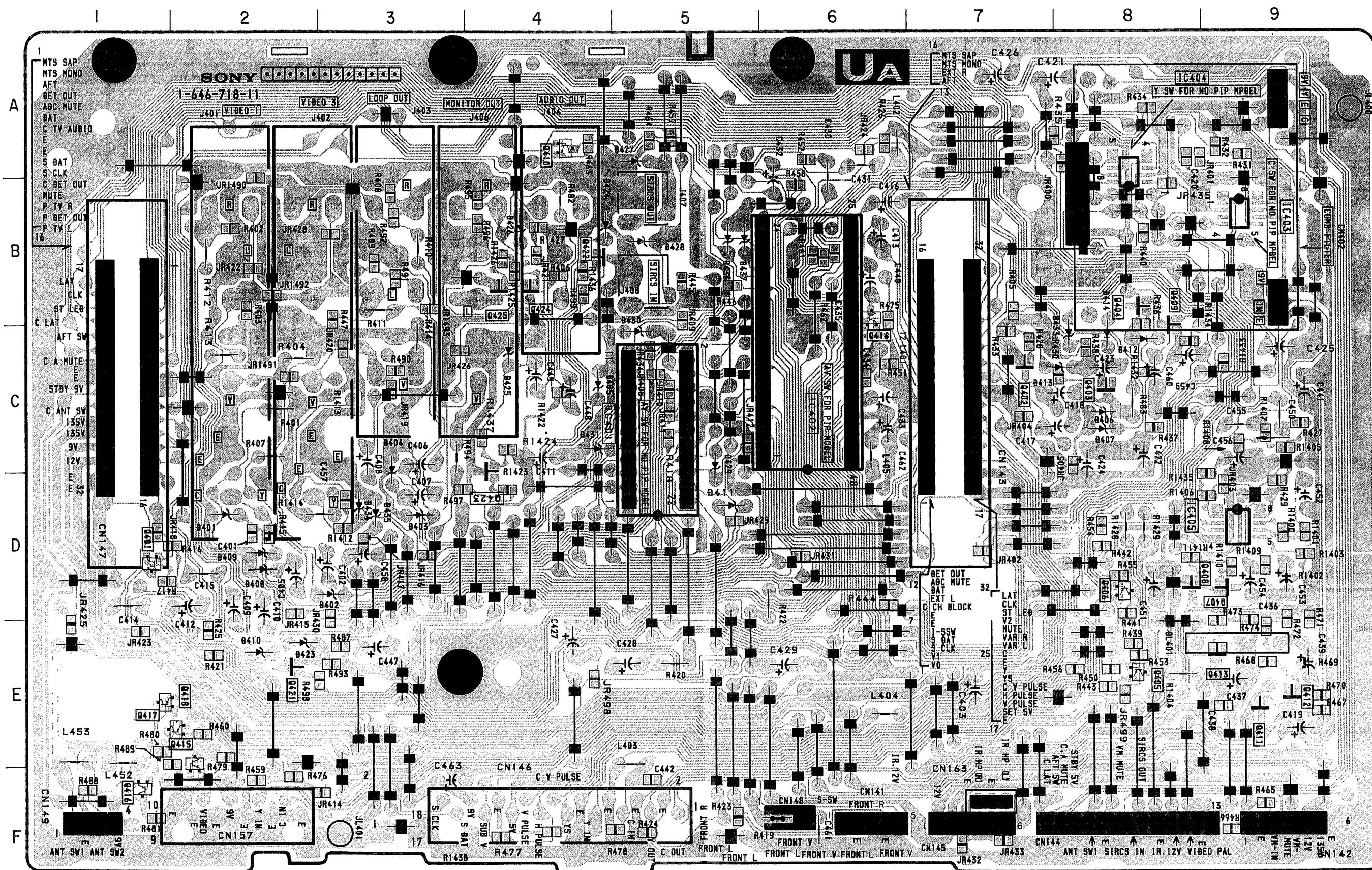
• UA BOARD WAVEFORMS

B-SS 4442<U..>-UA<WAVE LIST>



**UA** [ A/V SW  
A/V INPUT  
A/V OUTPUT ]

## — UA Board —



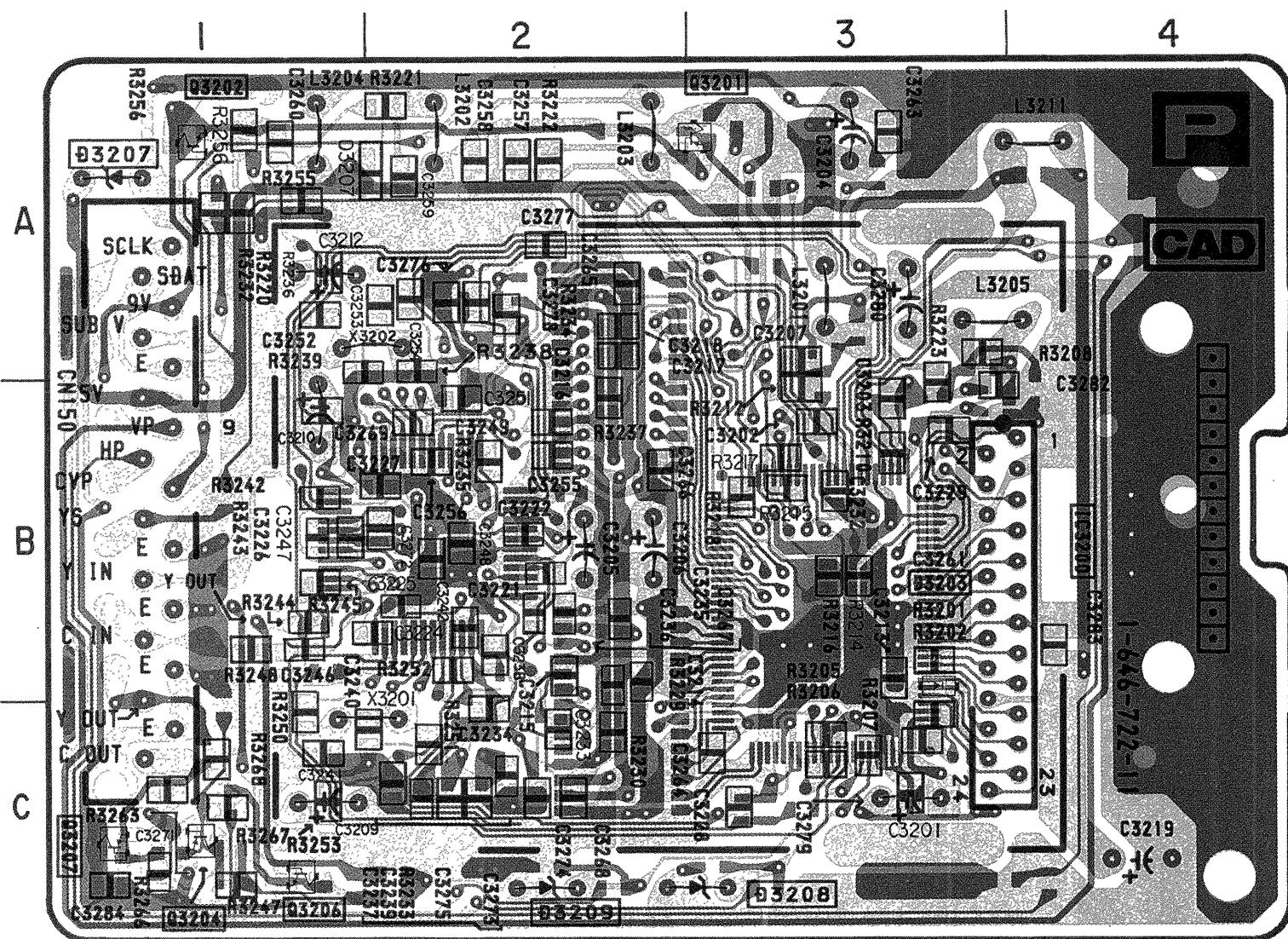
• UA BOARD

IC
IC402 C - 5
TRANSISTOR
Q401 D - 1
Q405 E - 8
Q406 D - 8
Q414 B - 6
DIODE
D401 D - 2
D402 D - 3
D403 D - 3
D404 C - 3
D405 C - 4
D408 D - 2
D410 E - 2
D411 D - 5
D429 C - 5
D430 C - 5
D431 C - 4
D436 B - 5
D437 B - 5

**P**

[PICTURE IN PICTURE]

- P Board (Conductor Side) -



- : Pattern on the side which is seen.
- : Pattern of the rear side.

• P BOARD

IC	
(Conductor Side)	(Component Side)
IC3200	B - 4
IC3201	B - 1
IC3202	B - 2
IC3203	B - 3
IC3204	A - 3
IC3205	B - 3
	B - 1

TRANSISTOR	
(Conductor Side)	(Component Side)
Q3201	A - 3
Q3202	A - 1
Q3203	B - 3
Q3204	C - 4
Q3206	C - 1
Q3207	C - 1
Q3208	C - 3
Q3209	C - 4
Q3210	A - 2

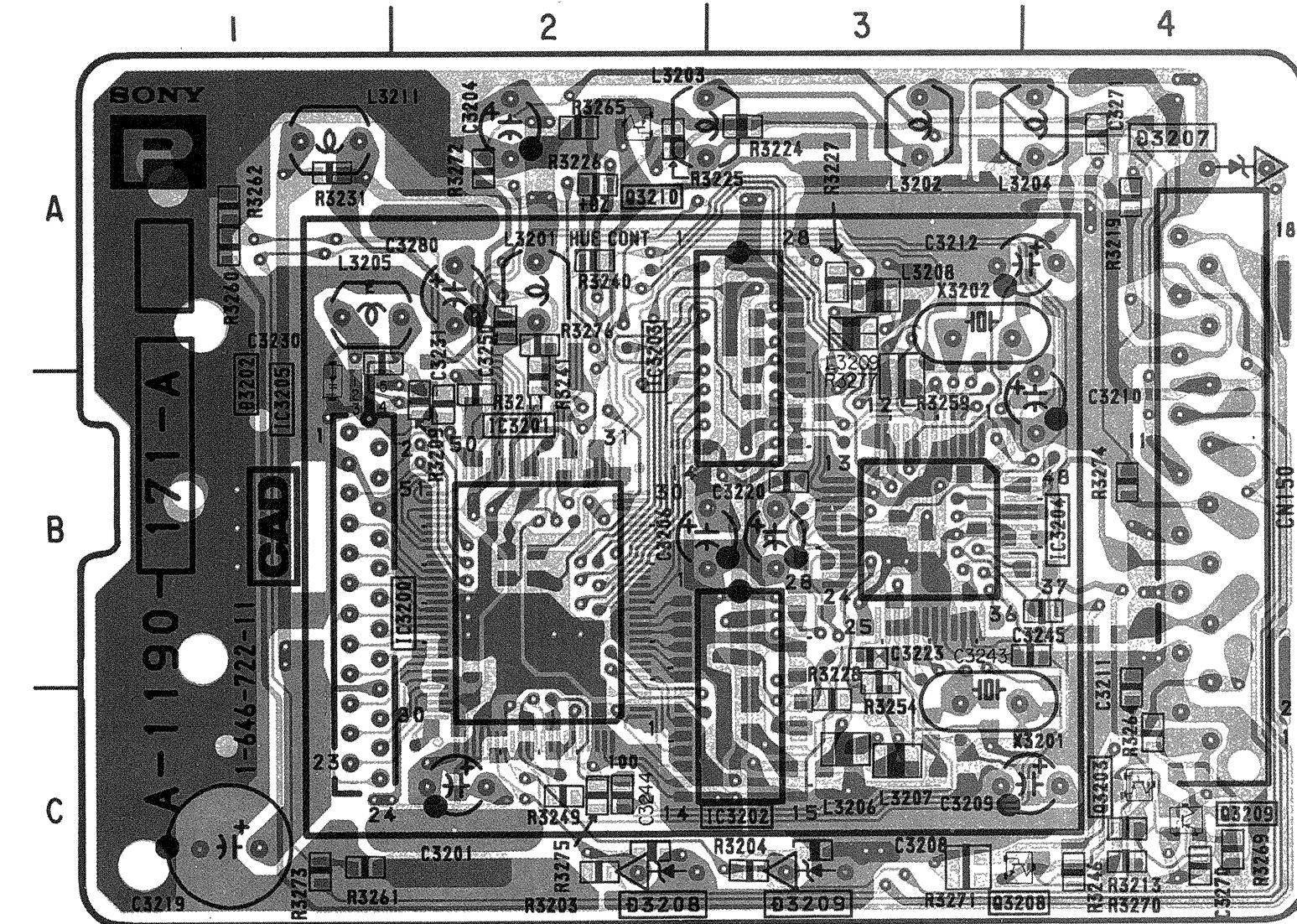
  

DIODE	
(Conductor Side)	(Component Side)
D3202	B - 1
D3203	B - 3
D3208	C - 3
D3209	C - 2
	C - 3

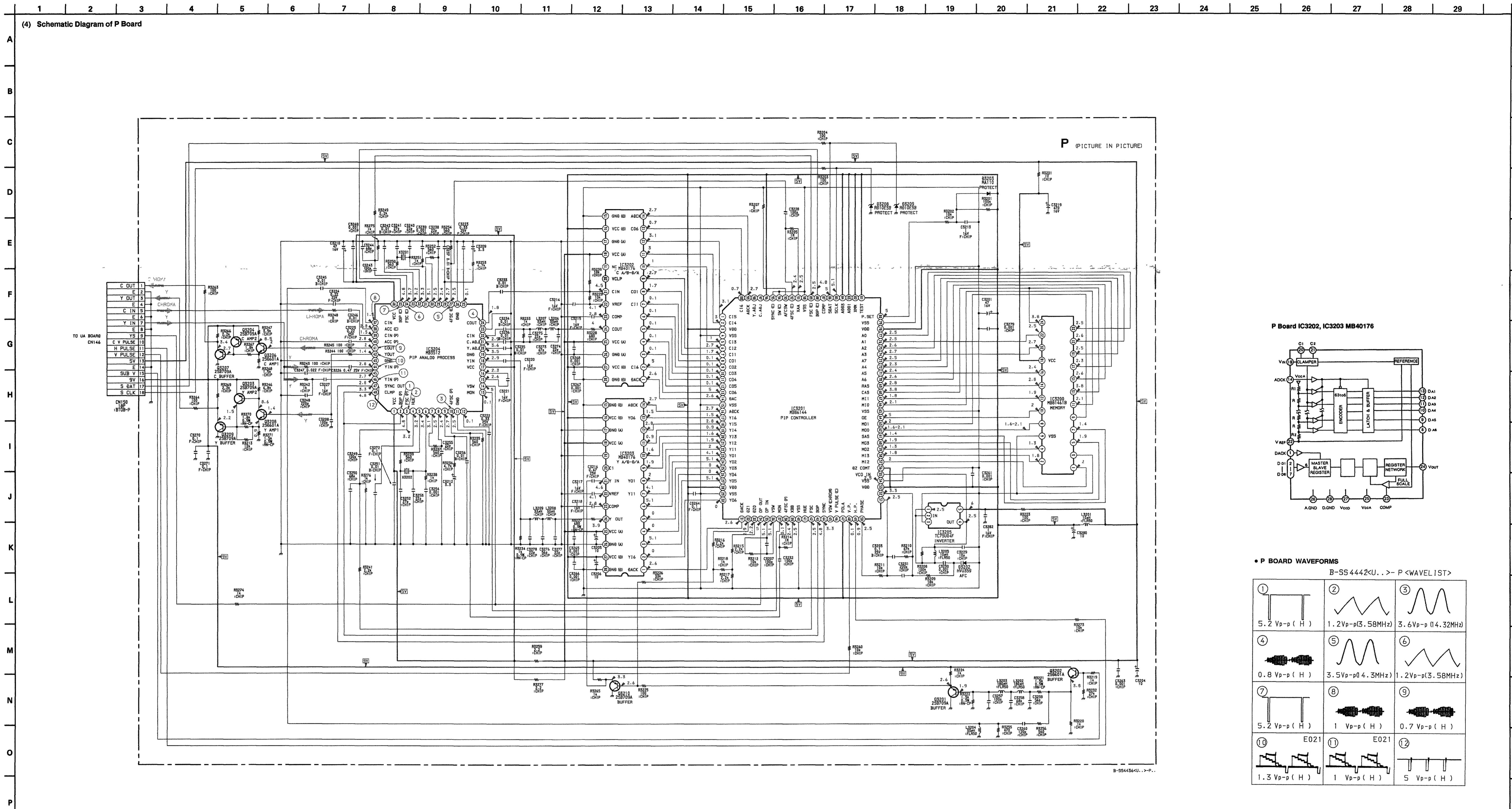
  

CRYSTAL	
(Conductor Side)	(Component Side)
X3201	C - 2
X3202	A - 2
	A - 3

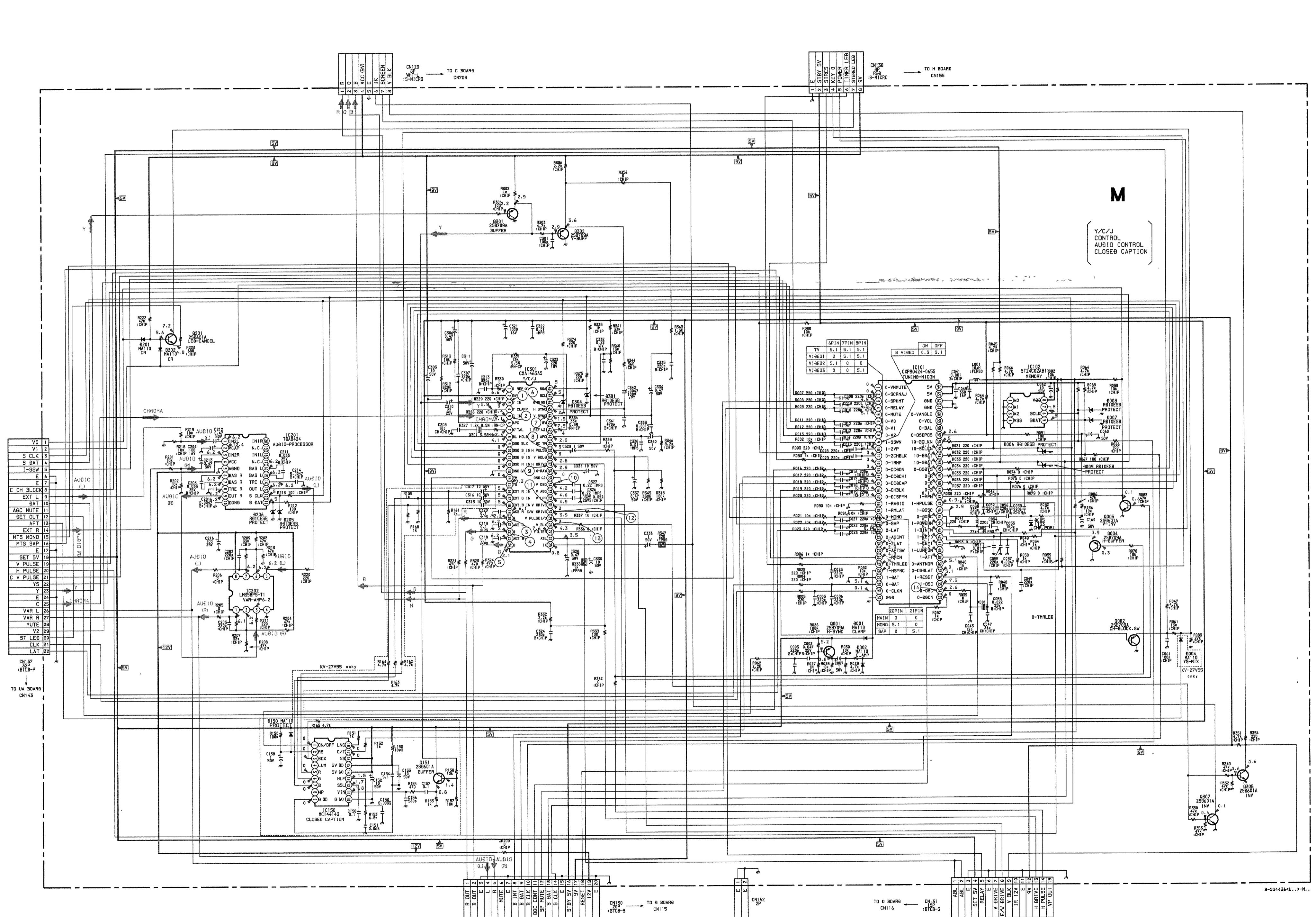
- P Board (Component Side) -



- : Pattern on the side which is seen.
- : Pattern of the rear side.

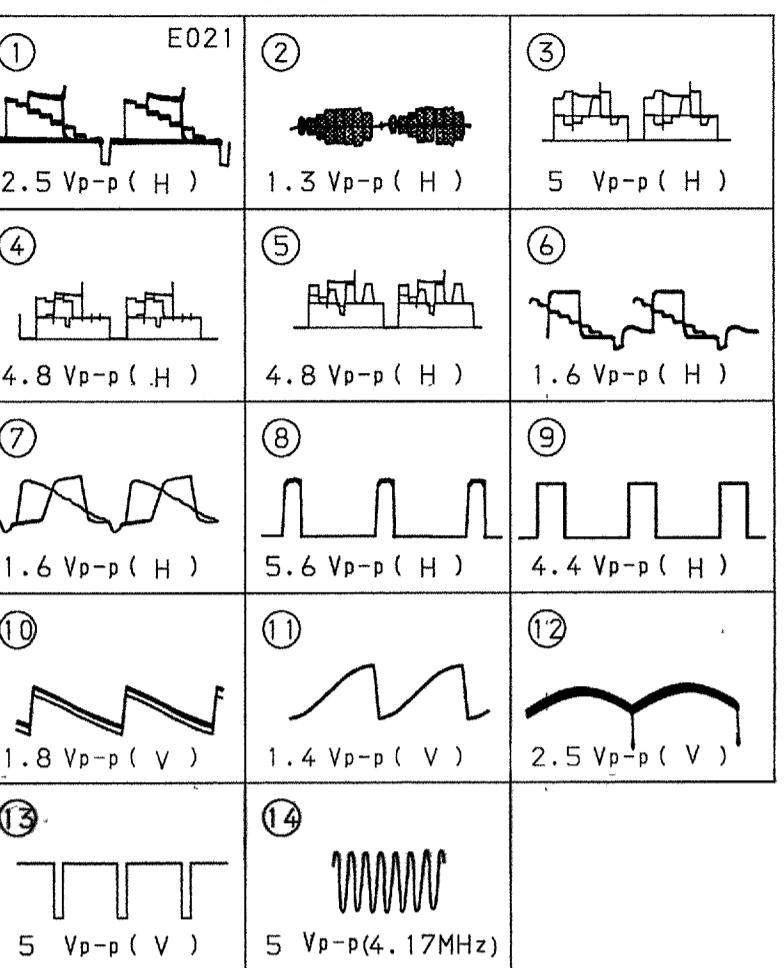


## (5) Schematic Diagram of M Board

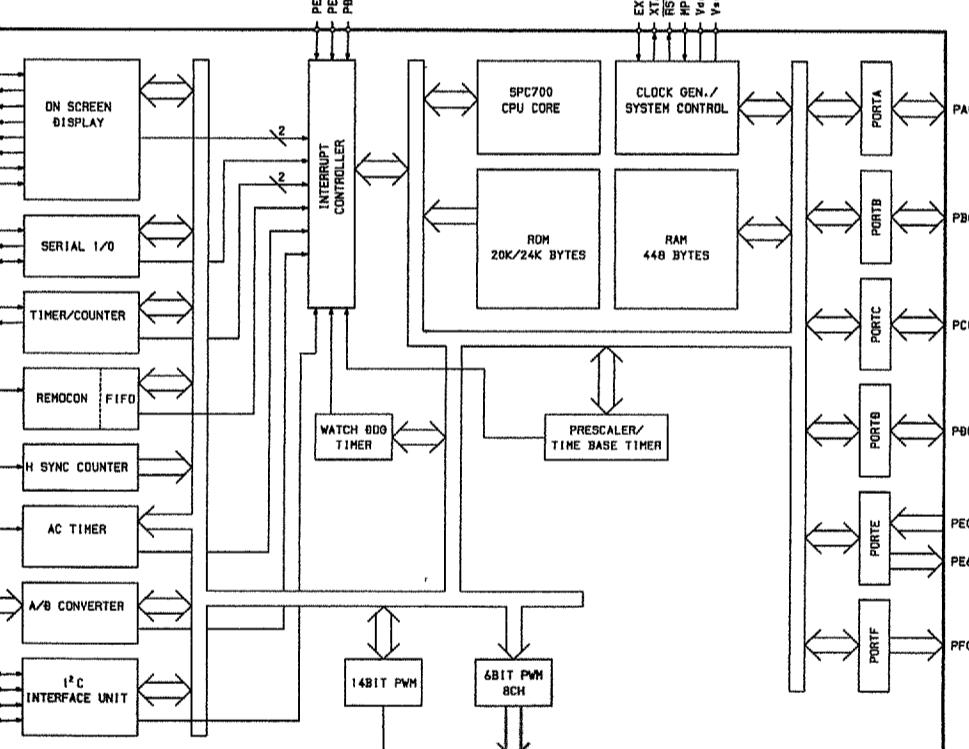


## • M BOARD WAVEFORMS

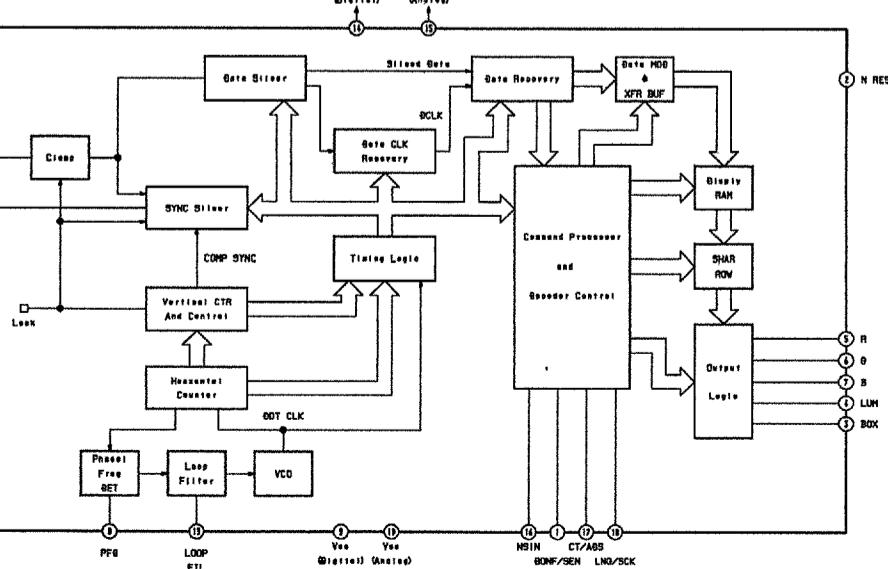
B-SS 4442&lt;U..&gt;- M &lt;WAVELIST&gt;



## M Board IC101 CX80424-065S

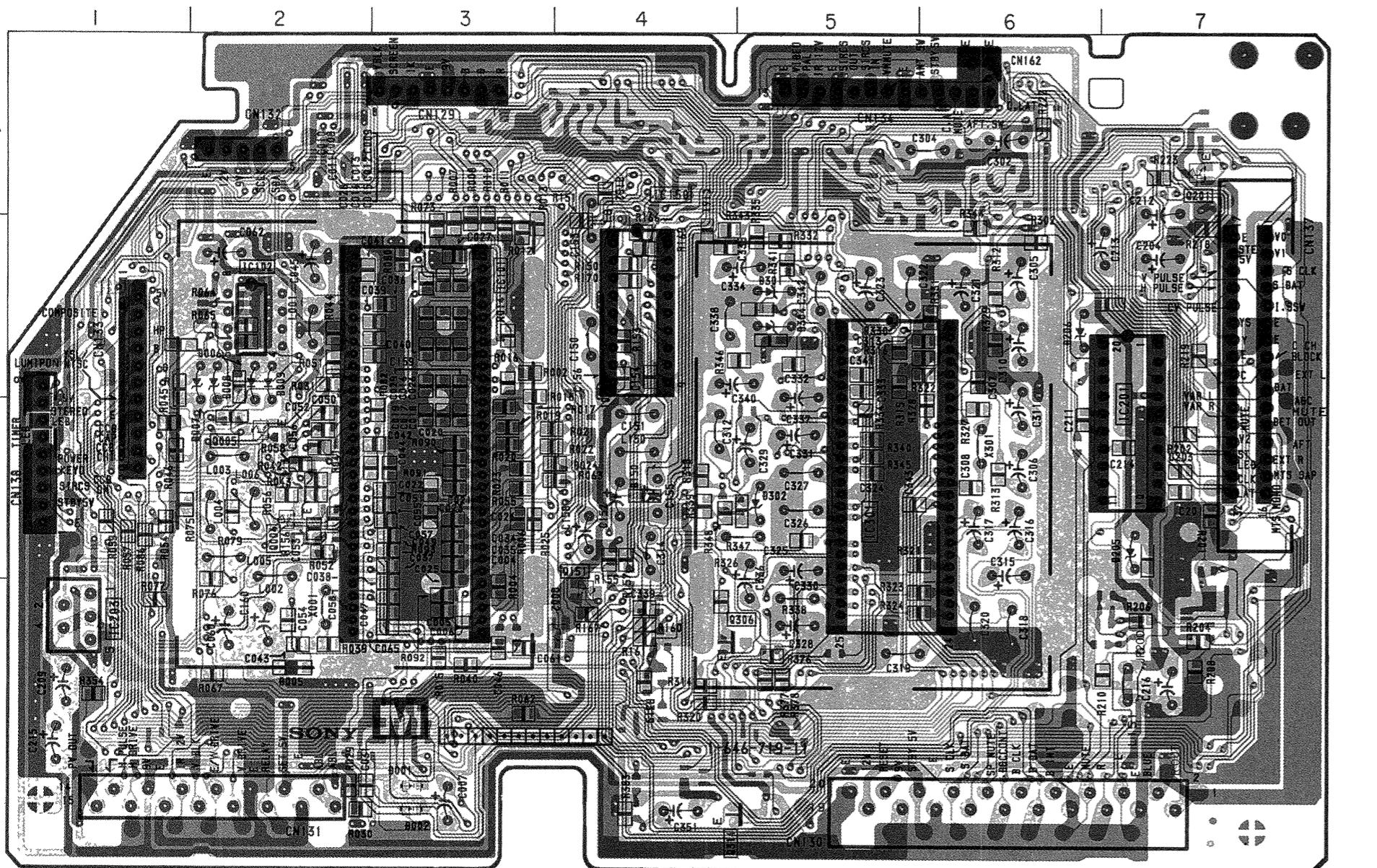


## M Board IC150 MC144143



**M** [Y/C/J CONTROL  
AUDIO CONTROL  
CLOSED CAPTION]

– M Board (Conductor Side) –



- : Pattern on the side which is seen.
- : Pattern of the rear side.

• M BOARD

IC		
(Conductor Side)		(Component Side)
IC101	C - 3	B - 5
IC102	B - 2	B - 7
IC150	B - 4	B - 4
IC201		B - 2
IC202		D - 1
IC301	B - 5	B - 3

TRANSISTOR		
(Conductor Side)		(Component Side)
Q001		D - 6
Q002	D - 4	D - 4
Q004	C - 2	D - 4
Q005	C - 2	
Q151	D - 4	
Q201	A - 7	
Q301		A - 2
Q302		A - 2
Q307		D - 4
Q308		D - 3
Q314		D - 5

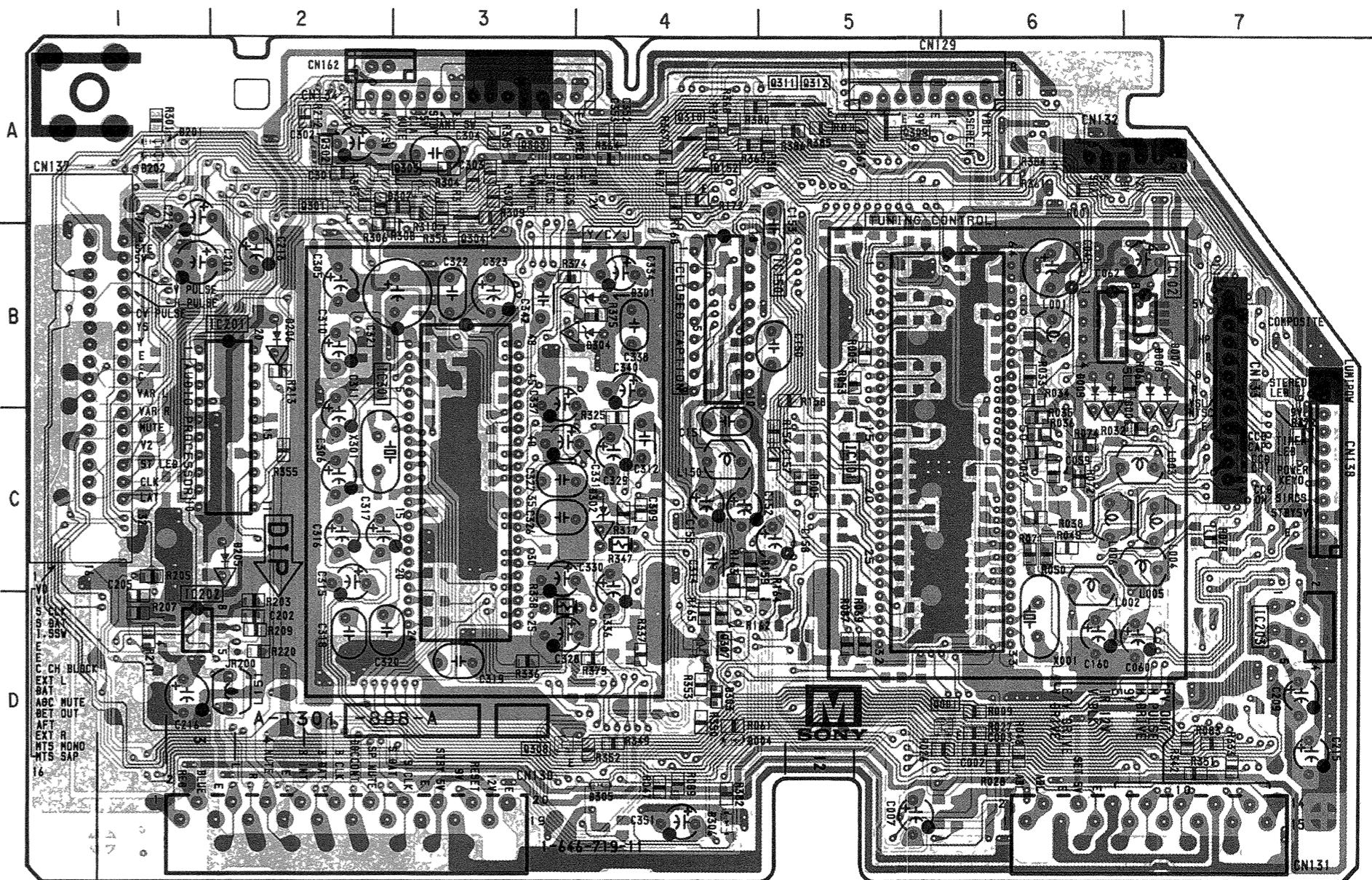
  

DIODE		
(Conductor Side)		(Component Side)
D001	D - 3	
D002	D - 3	
D004		D - 4
D005	D - 2	
D006	B - 2	B - 6
D007	B - 2	B - 7
D008	B - 2	B - 7
D009	B - 2	B - 6
D150	C - 4	
D201		A - 1
D202		A - 1
D205	C - 7	C - 2
D206	B - 6	B - 2
D301	B - 5	B - 4
D304	B - 5	B - 4
D305	B - 4	D - 4
D306		D - 4

CRYSTAL		
(Conductor Side)		(Component Side)
X001	D - 2	D - 6
X301	C - 6	C - 2

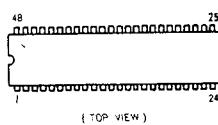
– M Board (Component Side) –



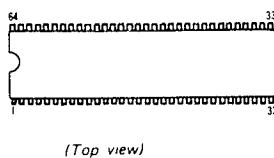
- : Pattern on the side which is seen.
- : Pattern of the rear side.

## 6-5. SEMICONDUCTORS

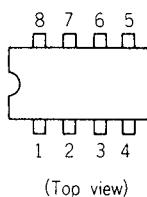
**CXA1465AS**  
**CXA1545AS**



**CXP80424-065S**

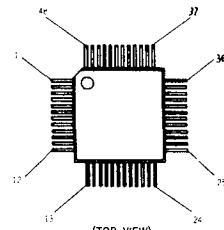


**LM358P**  
**ST24C02AB1**  
 $\mu$ **PC358C**  
 $\mu$ **PC393C**

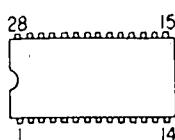


(Top view)

**MB3512PF-EF**

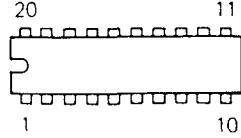


**MB40176PF-G-BND-EF**



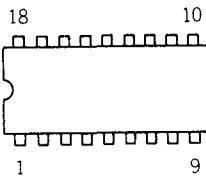
(Top view)

**TDA8424**



(Top view)

**Z8612812PSC**

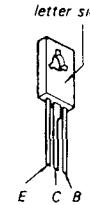


(Top view)

**2SA1091-O**  
**2SA1091-R**



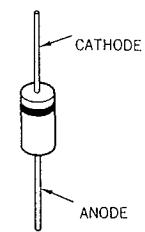
**2SC2688-LK**



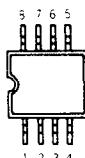
**D5SC4M**  
**D5SC4MR**



**EL1Z**  
**GP08DPKG3**  
**RGP10GPKG3**

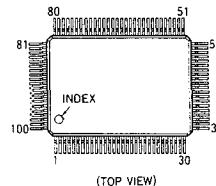


**LM358PS**

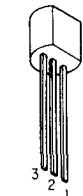


(TOP VIEW)

**MB86144**



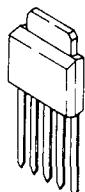
**RC78L05A**  
 $\mu$ **PC78L05J**



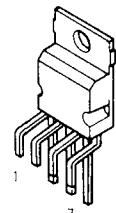
**LM7805CT**  
**LM7812CT**  
**MC7809CT**  
**RC7809FA**



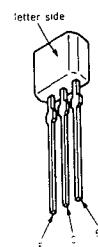
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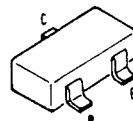
**TDA8172**



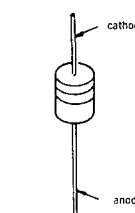
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**2SA1309A**  
**2SC2785-HFE**  
**2SC3311A**



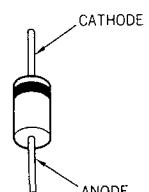
**2SB709A-Q**  
**2SB734-34**  
**2SD601A-Q**  
**2SD774-34**



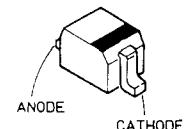
**D1NS4**  
**D1N20R**  
**ERA81-004**  
**ERA82-004**  
**ERA83-006**  
**ERA85-009**  
**RD10ES-B**  
**RD10ES-B2**  
**RD12ES-B3**  
**RD13ES-B2**  
**RD3.6ES-B1**  
**RD33ES-B1**  
**RD5.1ES-B1**  
**RD8.2ES-B3**  
**1SS119**



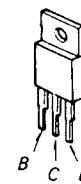
**ERD29-08J**  
**RGP02-17EL-6433**



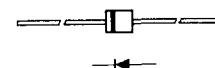
**MA110**



**2SB1370-EF**  
**2SC4159-E**  
**2SD2012**  
**2SD2061-EF**



**D2S4M**  
**D2S4MF**



## SECTION 7

### EXPLODED VIEWS

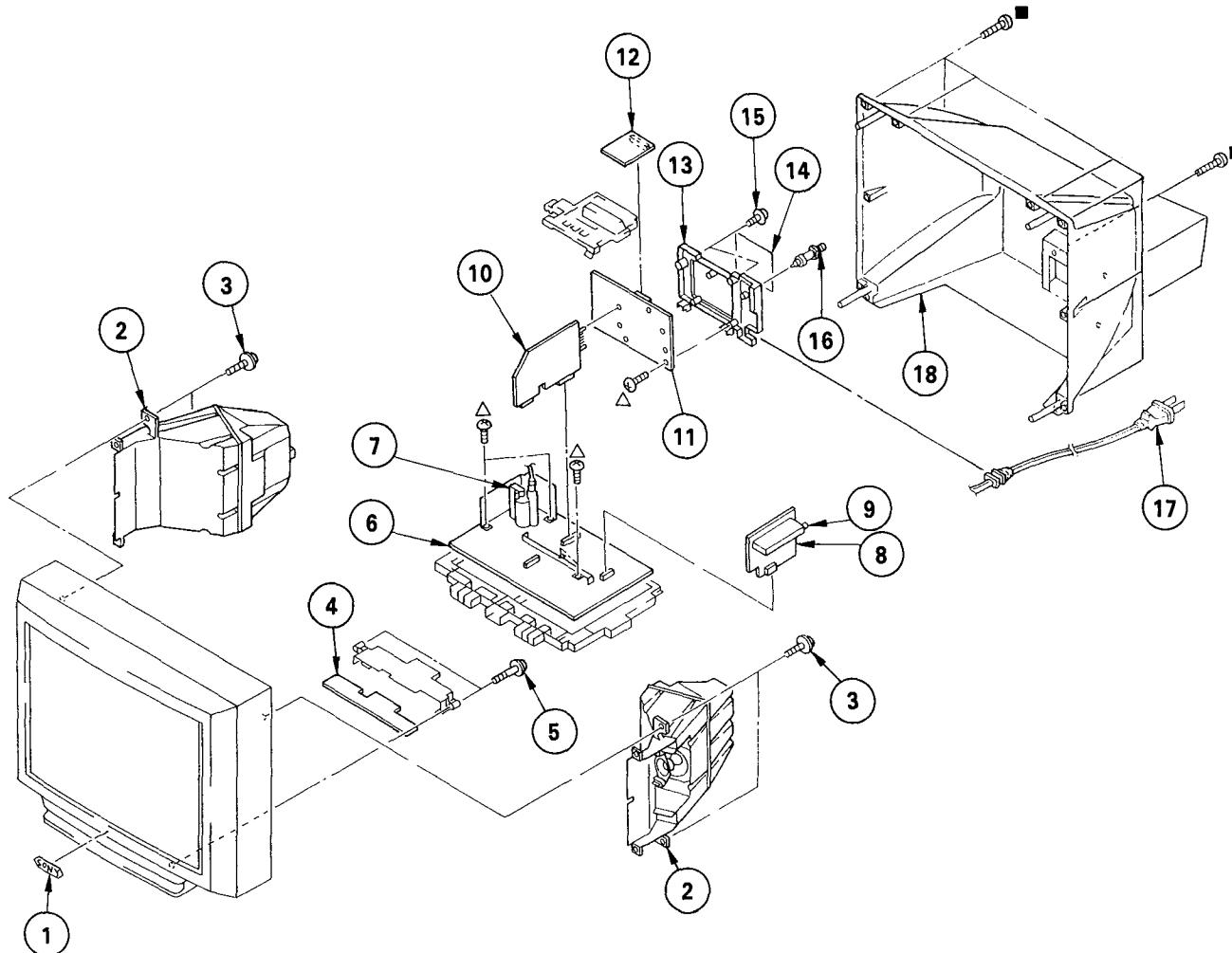
## NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark  $\triangle$  are critical for safety  
Replace only with part number specified

Les composants identifiés par une trame et une marque  $\triangle$  sont critiques pour la sécurité  
Ne les remplacer que par une pièce portant le numéro spécifié

## 7-1. CHASSIS

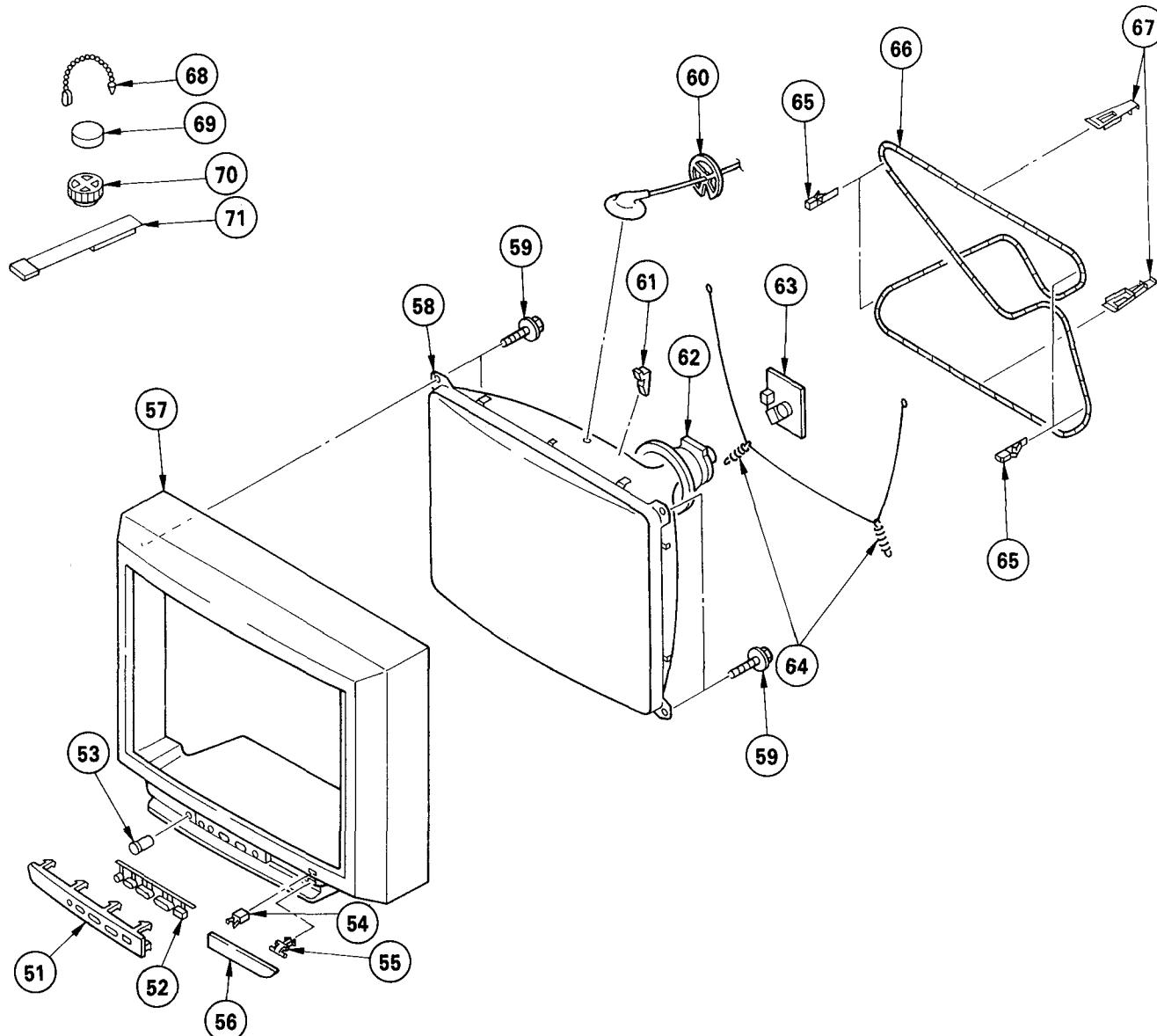
■: BVTP4  $\times$  16 7-685-663-79△: BVTP4  $\times$  12 7-685-661-14

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
1	4-394-048-01	EMBLEM (NO.9), SONY		10	*A-1306-432-A	M BOARD, COMPLETE	(KV-29V55M (B))
2	1-504-322-11	BOX, SPAKER (10CM.5CM)		11	*A-1394-418-A	UA BOARD, COMPLETE	
3	4-384-096-01	SCREW (4X16), TAPPING, +P		12	*A-1195-062-A	P BOARD, COMPLETE	
4	*1-646-717-11	H BOARD		13	4-039-524-01	TERMINAL BOARD, ANTENNA	
5	4-319-520-11	SCREW, SPECIAL (+PW4X30)		14	4-040-090-01	LABEL, TERMINAL	
6	*A-1346-116-A	D BOARD, COMPLETE		15	4-382-854-11	SCREW (M3X10), P, SW (+)	
7	1-453-186-11	TRANSFORMER ASSY, FLYBACK (BX-268443)		16	1-573-657-11	PLUG, P-PIN	
8	*A-1297-065-A	A BOARD, COMPLETE		17	*A-131-059-11	CORD, POWER (110V CONNECTOR (10A/125V))	
9	*A-0-598-029-01	TOREX 81P-38401		18	4-040-099-01	COVER, REAR	
10	*A-1306-427-A	M BOARD, COMPLETE	(KV-27V55 (U/C))				

Les composants identifiés par une trame et une marque **▲** sont critiques pour la sécurité  
Ne les remplacer que par une pièce portant le numéro spécifié

The components identified by shading and mark **▲** are critical for safety  
Replace only with part numbers specified.

**7-2. PICTURE TUBE**



REF. NO.	PART NO.	DESCRIPTION	REMARK
51	4-040-100-01	PANEL, CONTROL	
52	4-039-902-01	BUTTON, MULTI	
53	*4-389-517-01	GUIDE (R), LIGHT	
54	4-392-036-01	CATCHER, PUSH	
55	3-703-035-11	SHAFT, LID	
56	4-040-096-01	DOOR, CONTROL	
57	X-4031-072-1	BEZEL ASSY	
58	▲ 8-733-838-02	PICTURE TUBE (662250X)	
59	4-390-505-01	SCREW (7), TAPPING	
60	*3-704-372-01	HOLDER, HV CABLE	

REF. NO.	PART NO.	DESCRIPTION	REMARK
61	3-704-495-01	SPACER, DV	
62	▲ 1-453-273-01	DELECTION YOLK (Y280F)	
63	*A-1331-270-A	C BOARD, COMPLETE	
64	4-036-329-01	SPRING (B), TENSION	
65	4-040-388-01	HOLDER (S), DGC	
66	▲ 1-406-738-01	COIL, COGASSING	
67	4-040-387-01	HOLDER (M), DGC	
68	4-308-870-00	CLIP, LEAD WIRE	
69	1-452-032-00	MAGNET, DISK	
70	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM $\phi$	
71	X-4306-312-0	PERMALLOY ASSY, CONVERGENCE	

## **SECTION 8**

### **ELECTRICAL PARTS LIST**

P

**NOTE:**

The components identified by shading and mark  are critical for safety

Replace only with part number  
specified

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

## RESISTORS

- All resistors are in ohms
- F : nonflammable

When indicating parts by reference number, please include the board name.

## CAPACITORS

## COILS

- MF :  $\mu F$ , PF :  $\mu\mu F$       • MMH :  $\text{mH}$ , UH :  $\mu H$

- The components identified by  in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

P

A

The components identified by shading and mark  $\triangle$  are critical for safety  
Replace only with part number specified

Les composants identifiés par une trame et une marque  $\triangle$  sont critiques pour la sécurité  
Ne les remplacer que par une pièce portant le numéro spécifié

**A**

**M**

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
D170	8-719-110-76	DIODE RD33ESB1		C055	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
		<COIL>		C056	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
L170	1-408-408-00	INDUCTOR	8.2UH	C057	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
L171	1-408-408-00	INDUCTOR	8.2UH	C058	1-163-037-11	CERAMIC CHIP 0.022MF	10% 25V
L172	1-408-408-00	INDUCTOR	8.2UH	C059	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
		<RESISTOR>		C060	1-124-903-11	ELECT 1MF	20% 50V
R170	1-216-025-00	METAL GLAZE	100 5%	C061	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
R174	1-216-689-11	METAL GLAZE	39K 5%	C062	1-124-907-11	ELECT 10MF	20% 50V
R176	1-216-295-00	METAL GLAZE	0 5%	C150	1-136-165-00	FILM 0.1MF	5% 50V
R177	1-215-900-11	METAL OXIDE	22K 5%	C151	1-136-175-00	FILM 0.068MF	5% 50V
R179	1-216-065-00	METAL GLAZE	4.7K 5%	C152	1-124-907-11	ELECT 10MF	20% 50V
R187	1-216-083-00	METAL GLAZE	27K 5%	C153	1-137-367-11	FILM 0.0033MF	5% 50V
R193	1-216-037-00	METAL GLAZE	330 5%	C154	1-163-038-00	CERAMIC CHIP 0.1MF	25V
		<TUNER>		C155	1-124-907-11	ELECT 10MF	20% 50V
331038-8-598-039-01	TUNER KTF-08431			C156	1-163-135-00	CERAMIC CHIP 560PF	5% 50V
*****	*****	*****	*****	C157	1-163-038-00	CERAMIC CHIP 0.1MF	25V
**A-1306-427-A	M BOARD, COMPLETE (KV-27V55 (U/C))			C158	1-124-903-11	ELECT 1MF	20% 50V
*****	*****	*****	*****	C160	1-124-903-11	ELECT 1MF	20% 50V
**A-1306-432-A	M BOARD, COMPLETE (KV-29V55M (B))			C201	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
*****	*****	*****	*****	C202	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
		<CAPACITOR>		C203	1-163-989-11	CERAMIC CHIP 0.033MF	10% 25V
C002	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V	C204	1-124-101-11	ELECT 100MF	20% 16V
C003	1-163-001-11	CERAMIC CHIP 220PF	10% 50V	C205	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C005	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C211	1-163-989-11	CERAMIC CHIP 0.033MF	10% 25V
C006	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C212	1-124-902-00	ELECT 0.47MF	20% 50V
C007	1-124-903-11	ELECT 1MF	20% 50V	C213	1-124-902-00	ELECT 0.47MF	20% 50V
C008	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C214	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C009	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C216	1-124-478-11	ELECT 100MF	20% 25V
C010	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C301	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C012	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C305	1-124-907-11	ELECT 10MF	20% 50V
C013	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C306	1-124-902-00	ELECT 0.47MF	20% 50V
C014	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C307	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C015	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C308	1-163-099-00	CERAMIC CHIP 18PF	5% 50V
C016	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C310	1-124-916-11	ELECT 22MF	20% 25V
C017	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C311	1-124-903-11	ELECT 1MF	20% 50V
C018	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C313	1-163-003-11	CERAMIC CHIP 330PF	10% 50V
C019	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C315	1-124-907-11	ELECT 10MF	20% 50V
C021	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C316	1-124-907-11	ELECT 10MF	20% 50V
C022	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C317	1-124-907-11	ELECT 10MF	20% 50V
C023	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C318	1-136-165-00	FILM 0.1MF	5% 50V
C025	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C319	1-136-165-00	FILM 0.1MF	5% 50V
C028	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C320	1-136-165-00	FILM 0.1MF	5% 50V
C029	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C321	1-124-360-00	ELECT 1000MF	20% 16V
C041	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C322	1-136-153-00	FILM 0.01MF	5% 50V
C043	1-163-159-00	CERAMIC CHIP 12PF	2% 50V	C323	1-126-176-11	ELECT 220MF	20% 10V
C045	1-124-119-00	ELECT 330MF	20% 16V	C324	1-163-003-11	CERAMIC CHIP 330PF	10% 50V
C047	1-104-896-91	CERAMIC CHIP 24PF	2% 50V	C325	1-163-037-11	CERAMIC CHIP 0.022MF	10% 25V
C049	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C326	1-136-169-00	FILM 0.22MF	5% 50V
C050	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C327	1-136-169-00	FILM 0.22MF	5% 50V
C051	1-163-031-11	CERAMIC CHIP 0.01MF	5% 50V	C328	1-124-902-00	ELECT 0.47MF	20% 50V
C052	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C329	1-124-903-11	ELECT 1MF	20% 50V
C053	1-163-121-00	CERAMIC CHIP 150PF	5% 50V	C330	1-124-907-11	ELECT 10MF	20% 50V
C054	1-163-125-00	CERAMIC CHIP 220PF	5% 50V				

**M**

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK		
C331	1-124-907-11	ELECT 10MF	20% 50V	Q151	8-729-422-27	TRANSISTOR 2SD601A-Q	(KV-27V55 (U/C))		
C332	1-164-489-11	CERAMIC CHIP 0.22MF	10% 16V	Q201	8-729-422-27	TRANSISTOR 2SD601A-Q			
C333	1-163-011-11	CERAMIC CHIP 0.0015MF	10% 50V	Q301	8-729-422-36	TRANSISTOR 2SB709A-Q			
C334	1-124-902-00	ELECT 0.47MF	20% 50V	Q302	8-729-422-36	TRANSISTOR 2SB709A-Q			
C335	1-163-001-11	CERAMIC CHIP 220PF	10% 50V	Q307	8-729-422-27	TRANSISTOR 2SD601A-Q			
C336	1-124-903-11	ELECT 1MF	20% 50V	Q308	8-729-422-27	TRANSISTOR 2SD601A-Q			
C337	1-124-902-00	ELECT 0.47MF	20% 50V	<RESISTOR>					
C338	1-136-153-00	FILM 0.01MF	5% 50V	R002	1-216-073-00	METAL GLAZE 10K	5% 1/10W		
C340	1-124-903-11	ELECT 1MF	20% 50V	R003	1-216-033-00	METAL GLAZE 220	5% 1/10W		
C341	1-163-005-11	CERAMIC CHIP 470PF	10% 50V	R004	1-216-033-00	METAL GLAZE 220	5% 1/10W		
C342	1-137-414-91	FILM 0.0047MF	10% 100V	R005	1-216-033-00	METAL GLAZE 220	5% 1/10W		
<CONNECTOR>									
CN129	*1-564-523-11	PLUG, CONNECTOR 8P		R006	1-216-049-00	METAL GLAZE 1K	5% 1/10W		
CN130	1-573-301-11	CONNECTOR, BOARD TO BOARD 20P		R007	1-216-033-00	METAL GLAZE 220	5% 1/10W		
CN131	*1-691-632-11	CONNECTOR, BOARD TO BOARD 15P		R008	1-216-033-00	METAL GLAZE 220	5% 1/10W		
CN137	1-750-394-11	PIN, CONNECTOR (STAKING) 32P		R009	1-216-033-00	METAL GLAZE 220	5% 1/10W		
CN138	*1-564-511-11	PLUG, CONNECTOR 8P		R011	1-216-033-00	METAL GLAZE 220	5% 1/10W		
CN168	*1-564-505-11	PLUG, CONNECTOR 2P		R012	1-216-033-00	METAL GLAZE 220	5% 1/10W		
<DIODE>									
D001	8-719-404-46	DIODE MA110		R013	1-216-033-00	METAL GLAZE 220	5% 1/10W		
D002	8-719-404-46	DIODE MA110		R016	1-216-033-00	METAL GLAZE 220	5% 1/10W		
D004	8-719-404-46	DIODE MA110		R017	1-216-033-00	METAL GLAZE 220	5% 1/10W		
D005	8-713-300-57	DIODE 1T33		R018	1-216-033-00	METAL GLAZE 220	5% 1/10W		
D006	8-719-110-17	DIODE RD10ESB2		R019	1-216-033-00	METAL GLAZE 220	5% 1/10W		
D007	8-719-110-17	DIODE RD10ESB2		R020	1-216-033-00	METAL GLAZE 220	5% 1/10W		
D008	8-719-110-17	DIODE RD10ESB2		R021	1-216-073-00	METAL GLAZE 10K	5% 1/10W		
D009	8-719-110-17	DIODE RD10ESB2		R022	1-216-073-00	METAL GLAZE 10K	5% 1/10W		
D150	8-719-404-46	DIODE MA110		R023	1-216-033-00	METAL GLAZE 220	5% 1/10W		
D201	8-719-404-46	DIODE MA110		R025	1-216-033-00	METAL GLAZE 220	5% 1/10W		
D202	8-719-404-46	DIODE MA110		R026	1-216-097-00	METAL GLAZE 100K	5% 1/10W		
D205	8-719-110-17	DIODE RD10ESB2		R027	1-216-121-00	METAL GLAZE 1M	5% 1/10W		
D206	8-719-110-17	DIODE RD10ESB2		R028	1-216-073-00	METAL GLAZE 10K	5% 1/10W		
D301	8-719-110-17	DIODE RD10ESB2		R029	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W		
D304	8-719-110-17	DIODE RD10ESB2		R030	1-216-073-00	METAL GLAZE 10K	5% 1/10W		
<IC>									
IC101	8-752-841-16	IC CXP80424-065S		R031	1-216-033-00	METAL GLAZE 220	5% 1/10W		
IC102	8-759-043-86	IC ST24C02AB1		R032	1-216-033-00	METAL GLAZE 220	5% 1/10W		
IC150	8-759-084-09	IC 28612812PSC		R033	1-216-033-00	METAL GLAZE 220	5% 1/10W		
IC201	8-759-090-21	IC TDA8424		R034	1-216-033-00	METAL GLAZE 220	5% 1/10W		
IC202	8-759-983-69	IC LM358PS		R035	1-216-033-00	METAL GLAZE 220	5% 1/10W		
IC301	8-752-059-67	IC CXA1465AS		R036	1-216-033-00	METAL GLAZE 220	5% 1/10W		
<JUMPER RESISTOR>									
JR200	1-216-295-00	METAL GLAZE 0	5% 1/10W	R037	1-216-033-00	METAL GLAZE 220	5% 1/10W		
<COIL>									
L001	1-410-470-11	INDUCTOR 10UH		R038	1-216-033-00	METAL GLAZE 220	5% 1/10W		
L002	1-408-414-00	INDUCTOR 27UH		R039	1-216-295-00	METAL GLAZE 0	5% 1/10W		
L150	1-410-470-11	INDUCTOR 10UH		R040	1-216-049-00	METAL GLAZE 1K	5% 1/10W		
(KV-27V55 (U/C))									
<TRANSISTOR>									
Q001	8-729-422-36	TRANSISTOR 2SB709A-Q		R041	1-216-033-00	METAL GLAZE 220	5% 1/10W		
Q002	8-729-422-36	TRANSISTOR 2SB709A-Q		R042	1-216-049-00	METAL GLAZE 1K	5% 1/10W		
Q004	8-729-422-36	TRANSISTOR 2SB709A-Q		R043	1-216-049-00	METAL GLAZE 1K	5% 1/10W		
Q005	8-729-422-27	TRANSISTOR 2SD601A-Q		R044	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W		
(KV-27V55 (U/C))									
R045	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W	R046	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W		
R047	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W	R048	1-216-073-00	METAL GLAZE 10K	5% 1/10W		
R049	1-216-049-00	METAL GLAZE 1K	5% 1/10W	R050	1-216-049-00	METAL GLAZE 1K	5% 1/10W		
(KV-27V55 (U/C))									
R051	1-216-073-00	METAL GLAZE 10K	5% 1/10W	R052	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W		
R053	1-216-049-00	METAL GLAZE 1K	5% 1/10W	R054	1-216-049-00	METAL GLAZE 1K	5% 1/10W		
R055	1-216-073-00	METAL GLAZE 10K	5% 1/10W	R058	1-216-073-00	METAL GLAZE 10K	5% 1/10W		
(KV-27V55 (U/C))									
R059	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W	R061	1-216-077-00	METAL GLAZE 15K	5% 1/10W		
R062	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W	R064	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W		
R065	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W	R066	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W		

M

C

Les composants identifies par une trame et une marque  $\Delta$  sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

The components identified by shading and mark  are critical for safety  
Replace only with part number specified

C D

D

The components identified by shading and mark **A** are critical for safety  
Replace only with part number specified

Les composants identifiés par une trame et une marque **A** sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
*****							
1-533-223-11	CLIP, FUSE			C612	1-136-169-00	FILM	0.22MF
1-923-221-02	WIRE UL1007 AWG22 170MM BLK			C613	1-164-625-11	CERAMIC	680PF
4-382-854-11	SCREW (M3X10), P, SW (+)			C614	1-164-625-11	CERAMIC	680PF
				C616	1-124-907-11	ELECT	10MF
				C617	1-124-607-11	ELECT	2200MF
				C618	1-124-557-11	ELECT	1000MF
				C619	1-124-360-00	ELECT	1000MF
				C620	1-164-644-11	CERAMIC	330PF
				C621	1-126-356-11	ELECT	220MF
				C623	1-162-117-00	CERAMIC	100PF
				C624	1-136-487-81	FILM	0.015MF
				C625	1-129-744-91	FILM	0.027MF
				C626	1-124-478-11	ELECT	100MF
				C627	1-124-443-00	ELECT	100MF
				C628	1-164-497-51	CERAMIC	78PF
				C634	1-165-127-11	CERAMIC	470PF
				C635	1-124-477-11	ELECT	47MF
				C636	1-137-374-11	FILM	0.047MF
				C637	1-124-916-11	ELECT	22MF
				C640	1-124-902-00	ELECT	0.47MF
				C641	1-124-443-00	ELECT	100MF
				C642	1-137-217-11	FILM	0.01MF
				C643	1-137-218-11	FILM	0.012MF
				C645	1-102-125-00	CERAMIC	0.0047MF
				C646	1-126-101-11	ELECT	100MF
				C647	1-124-916-11	ELECT	22MF
				C684	1-124-907-11	ELECT	10MF
				C695	1-124-907-11	ELECT	10MF
				C2205	1-124-925-11	ELECT	2.2MF
				C2208	1-124-925-11	ELECT	2.2MF
				C2210	1-124-120-11	ELECT	220MF
				C2211	1-124-477-11	ELECT	47MF
				C2212	1-124-120-11	ELECT	220MF
				C2213	1-136-173-00	FILM	0.47MF
				C2215	1-136-169-00	FILM	0.22MF
				C2216	1-126-105-11	ELECT	1000MF
				C2217	1-136-169-00	FILM	0.22MF
				C2218	1-126-105-11	ELECT	1000MF
				C2219	1-126-105-11	ELECT	1000MF
				C2220	1-124-925-11	ELECT	2.2MF
<CONNECTOR>							
				CN104	*1-573-979-11	CONNECTOR, BOARD TO BOARD 11P	
				CN105	*1-508-768-00	PIN, CONNECTOR (5MM PITCH) 6P	
				CN107	*1-580-798-11	CONNECTOR PIN (DY) 6P	
				CN113	*1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P	
				CN114	*1-580-843-11	PIN, CONNECTOR (POWER)	
				CN115	1-573-298-11	CONNECTOR, BOARD TO BOARD 20P	
				CN116	*1-691-616-11	CONNECTOR, BOARD TO BOARD 15P	
				CN117	*1-573-978-11	CONNECTOR, BOARD TO BOARD 11P	
<DIODE>							
				D501	8-719-028-72	DIODE RGP02-17EL-6433	
				D502	8-719-979-85	DIODE EGP20G	
				D503	8-719-979-85	DIODE EGP20G	
				D504	8-719-302-84	DIODE EL12-81	
				D505	8-719-936-84	DIODE RGP10GPKG3	
				D506	8-719-945-80	DIODE ERC06-15S	
				D507	8-719-945-80	DIODE ERC06-15S	
				D508	8-719-900-26	DIODE ERD29-08J	
				D509	8-719-936-84	DIODE RGP10GPKG3	
				D510	8-719-936-82	DIODE GP08DPKG3	

D

The components identified by **█** in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

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The components identified by shading and mark **█** are critical for safety. Replace only with part number specified.

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
D511	8-719-936-82	DIODE GP08DPKG3		IC606	8-759-982-10	IC RC7809FA	
D512	8-719-109-84	DIODE RD5.1BSB1		IC610	8-759-982-21	IC RC78L05A	
D513	8-719-936-82	DIODE GP08DPKG3		IC2200	8-759-089-13	IC TDA7262	
D514	8-719-911-19	DIODE ISS119					
D515	8-719-911-19	DIODE ISS119					
D601	8-719-911-19	DIODE ISS119					
D602	8-719-510-63	DIODE D2S4MF					
D603	8-719-500-69	DIODE S3V10SS					
D605	8-719-500-69	DIODE S3V10SS					
D607	8-719-510-02	DIODE D1NS4					
D608	8-719-022-97	DIODE D2S4MF		L502	1-421-465-00	COIL, FERRITE CHOKE 68UH	
D609	8-719-022-97	DIODE D2S4MF		L503	1-412-524-11	INDUCTOR 8.2UH	
D610	8-719-022-97	DIODE D2S4MF		L504	1-410-669-31	INDUCTOR 33UH	
D611	8-719-022-97	DIODE D2S4MF		L505	1-459-104-00	COIL, WITH CORE	
D612	8-719-031-80	DIODE D5SC4MR		L506	1-422-613-11	COIL, AIR CORE	
D613	8-719-022-97	DIODE D2S4MF		L508	1-412-553-11	INDUCTOR 3.3MMH	
D614	8-719-110-33	DIODE RD12ESB3		L509	1-468-173-23	COIL, HORIZONTAL LINEARITY	
D615	8-719-027-43	DIODE S2L20UF		L510	1-406-607-11	COIL, CHOKE 15MMH	
D616	8-719-027-43	DIODE S2L20UF		L513	1-412-524-11	INDUCTOR 8.2UH	
D617	8-719-027-43	DIODE S2L20UF					
D618	8-719-027-43	DIODE S2L20UF					
D619	8-719-510-02	DIODE D1NS4					
D622	8-719-911-19	DIODE ISS119					
D623	8-719-911-19	DIODE ISS119					
D624	8-719-911-19	DIODE ISS119					
D626	8-719-510-48	DIODE D1N20R					
D627	8-719-510-48	DIODE D1N20R					
D628	8-719-911-19	DIODE ISS119					
D629	8-719-936-82	DIODE GP08DPKG3					
D630	8-719-936-82	DIODE GP08DPKG3					
D631	8-719-936-82	DIODE GP08DPKG3					
D632	8-719-936-82	DIODE GP08DPKG3					
D633	8-719-110-09	DIODE RD8.2ESB3					
D634	8-719-911-19	DIODE ISS119					
D635	8-719-911-19	DIODE ISS119					
D636	8-719-510-48	DIODE D1N20R					
D637	8-719-911-19	DIODE ISS119					
D638	8-719-911-19	DIODE ISS119					
<FUSE>							
F601	8-1-532-748-11	FUSE, GLASS TUBE (6.3A/125V)					
<FERRITE BEAD>							
FB501	1-412-911-11	INDUCTOR, FERRITE BEAD					
FB502	1-412-911-11	INDUCTOR, FERRITE BEAD					
FB601	1-412-911-11	INDUCTOR, FERRITE BEAD					
FB602	1-412-911-11	INDUCTOR, FERRITE BEAD					
FB603	1-412-911-11	INDUCTOR, FERRITE BEAD					
FB604	1-412-911-11	INDUCTOR, FERRITE BEAD					
FB605	1-412-911-11	INDUCTOR, FERRITE BEAD					
FB606	1-412-911-11	INDUCTOR, FERRITE BEAD					
FB613	1-412-911-11	INDUCTOR, FERRITE BEAD					
FB614	1-412-911-11	INDUCTOR, FERRITE BEAD					
<IC>							
IC501	8-759-980-58	IC TDA8172					
IC504	8-759-103-93	IC UPC393C					
IC601	8-759-051-11	POWER MOSFET 10A/48					
IC602	8-759-805-37	IC L78LR05D-MA					
IC604	8-759-924-12	IC LM7805CT					
IC605	8-759-929-62	IC LM7812CT					
<RESISTOR>							
R501	1-249-378-11	CARBON	0.56	5%	1/4W	F	
R503	1-215-862-11	METAL OXIDE	68	5%	1W	F	
R504	1-215-872-11	METAL OXIDE	3.3K	5%	1W	F	
R505	1-249-377-11	CARBON	0.47	5%	1/4W	F	
R506	1-215-886-11	METAL OXIDE	100	5%	2W	F	
R507	1-249-429-11	CARBON	10K	5%	1/4W		
R508	1-249-425-11	CARBON	4.7K	5%	1/4W		
R509	1-249-389-11	CARBON	4.7	5%	1/4W		
R511	1-249-389-11	CARBON					
R512	1-249-389-11	CARBON	4.7	5%	1/4W	F	
R513	1-216-393-00	METAL OXIDE	2.2	5%	3W	F	
R514	1-249-429-11	CARBON	10K	5%	1/4W		
R515	1-216-363-00	METAL OXIDE	0.33	5%	2W	F	
R516	1-249-401-11	CARBON	47	5%	1/4W		
R517	1-215-916-00	METAL OXIDE	680	5%	3W	F	
R518	1-215-916-00	METAL OXIDE	680	5%	3W	F	
R519	1-249-426-11	CARBON	5.6K	5%	1/4W	F	

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REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
R520	1-249-423-11	CARBON	3.3K 5% 1/4W	R640	1-202-893-91	S3013	8.28 20% 1/2W
R521	1-249-411-11	CARBON	330 5% 1/4W	R643	1-216-379-11	METAL OXIDE	6.8 5% 2W R
R522	1-215-886-11	METAL OXIDE	100 5% 2W F	R644	1-212-893-63	S3013	6.8 5% 3/2W R
R523	1-215-862-11	METAL OXIDE	68 5% 1W F	R645	1-249-377-11	CARBON	0.47 5% 1/4W F
<b>☒ R524</b>				R646	1-249-429-11	CARBON	10K 5% 1/4W
R525	1-215-884-11	METAL OXIDE	47 5% 2W F	R647	1-249-433-11	CARBON	22K 5% 1/4W
R526	1-247-887-00	CARBON	220K 5% 1/4W	R648	1-249-414-11	CARBON	560 5% 1/4W
R527	1-215-861-00	METAL OXIDE	47 5% 1W F	R649	1-216-431-11	METAL OXIDE	560 5% 1W F
R528	1-260-326-71	CARBON	680 5% 1/2W	R650	1-249-405-11	CARBON	100 5% 1/4W F
R530	1-215-445-00	METAL	10K 1% 1/4W	R651	1-212-934-63	FUSIBLE	6.8 5% 3/2W R
R531	1-247-903-00	CARBON	1M 5% 1/4W	R652	1-212-934-63	FUSIBLE	6.8 5% 3/2W R
R532	1-215-446-00	METAL	11K 1% 1/4W	R653	1-249-381-11	CARBON	1 5% 1/4W
R534	1-249-385-11	CARBON	2.2 5% 1/4W F	R654	1-216-385-11	METAL OXIDE	0.47 5% 3W F
R535	1-216-453-00	METAL OXIDE	270 5% 2W F	R655	1-249-417-11	CARBON	1K 5% 1/4W F
R536	1-249-389-11	CARBON	4.7 5% 1/4W F	R656	1-249-381-11	CARBON	1 5% 1/4W
R539	1-215-459-00	METAL	39K 1% 1/4W	R657	1-249-417-11	CARBON	1K 5% 1/4W
R543	1-249-419-11	CARBON	1.5K 5% 1/4W	R658	1-249-389-11	CARBON	4.7 5% 1/4W F
R546	1-249-431-11	CARBON	15K 5% 1/4W	R659	1-247-883-00	CARBON	150K 5% 1/4W
R547	1-247-883-00	CARBON	150K 5% 1/4W	R660	1-249-433-11	CARBON	22K 5% 1/4W
R550	1-249-429-11	CARBON	10K 5% 1/4W	R661	1-249-406-11	CARBON	120 5% 1/4W
R551	1-249-429-11	CARBON	10K 5% 1/4W	R660	1-249-423-11	CARBON	3.3K 5% 1/4W
R554	1-216-371-00	METAL OXIDE	1.5 5% 2W F	R669	1-249-423-11	CARBON	3.3K 5% 1/4W
R556	1-249-411-11	CARBON	330 5% 1/4W F	R671	1-249-423-11	CARBON	3.3K 5% 1/4W
R557	1-249-415-11	CARBON	680 5% 1/4W F	R2209	1-249-427-11	CARBON	6.8K 5% 1/4W
R561	1-249-429-11	CARBON	10K 5% 1/4W	R2210	1-249-431-11	CARBON	15K 5% 1/4W
R562	1-215-437-00	METAL	4.7K 1% 1/4W	R2211	1-249-427-11	CARBON	6.8K 5% 1/4W
R563	1-249-429-11	CARBON	10K 5% 1/4W	R2212	1-249-431-11	CARBON	15K 5% 1/4W
R564	1-249-433-11	CARBON	22K 5% 1/4W	R2215	1-249-425-11	CARBON	4.7K 5% 1/4W
R566	1-249-435-11	CARBON	33K 5% 1/4W	R2216	1-249-437-11	CARBON	47K 5% 1/4W
R580	1-249-411-11	CARBON	330 5% 1/4W	R2217	1-249-435-11	CARBON	33K 5% 1/4W
<b>☒ R581</b>				R2218	1-249-441-11	CARBON	100K 5% 1/4W
R601	1-202-883-91	S3013	2.28 20% 1/2W	R2219	1-249-413-11	CARBON	470 5% 1/4W
<b>☒ R602</b>				R2220	1-249-430-11	CARBON	12K 5% 1/4W
R603	1-249-419-11	CARBON	1.5K 5% 1/4W	R2221	1-249-430-11	CARBON	12K 5% 1/4W
R605	1-247-893-11	CARBON	390K 5% 1/4W	R2222	1-249-398-11	CARBON	27 5% 1/4W
R606	1-247-893-11	CARBON	390K 5% 1/4W	R2223	1-249-418-11	CARBON	1.2K 5% 1/4W F
<b>☒ R607</b>				R2224	1-249-418-11	CARBON	1.2K 5% 1/4W F
R608	1-215-860-11	METAL OXIDE	33 5% 1W F	R2225	1-249-398-11	CARBON	27 5% 1/4W
R609	1-216-352-11	METAL OXIDE	1.8 5% 1W F	R2226	1-249-385-11	CARBON	2.2 5% 1/4W F
R610	1-216-352-11	METAL OXIDE	1.8 5% 1W F	R2227	1-249-385-11	CARBON	2.2 5% 1/4W F
R611	1-216-468-91	METAL OXIDE	82K 5% 2W F	R2228	1-249-421-11	CARBON	2.2K 5% 1/4W
R612	1-216-468-91	METAL OXIDE	82K 5% 2W F	R2229	1-249-421-11	CARBON	2.2K 5% 1/4W
R613	1-215-860-11	METAL OXIDE	33 5% 1W F	<RELAY>			
R614	1-215-860-11	METAL OXIDE	33 5% 1W F	RY601			
R615	1-249-421-11	CARBON	2.2K 5% 1/4W	RY602	1-515-516-00	RELAY	
R616	1-249-417-11	CARBON	1K 5% 1/4W	<SWITCH>			
R617	1-249-377-11	CARBON	0.47 5% 1/4W F	S501			
R618	1-249-377-11	CARBON	0.47 5% 1/4W F	S502			
R619	1-249-377-11	CARBON	0.47 5% 1/4W F	<TRANSFORMER>			
R621	1-249-377-11	CARBON	0.47 5% 1/4W F	T501			
R622	1-249-377-11	CARBON	0.47 5% 1/4W F	T501	1-453-146-11	TRANSFORMER, ASSY, FLYSBACK (XK-2604A3)	
R623	1-249-377-11	CARBON	0.47 5% 1/4W F	T502	1-427-195-14	TRANSFORMER, HIGH VOLTAGE	
R624	1-249-377-11	CARBON	0.47 5% 1/4W F	T503	1-424-543-22	TRANSFORMER, FERRITE (PMT)	
R625	1-249-377-11	CARBON	0.47 5% 1/4W F	T504	1-423-593-11	TRANSFORMER, LINE FILTER (LET)	
R627	1-249-377-11	CARBON	0.47 5% 1/4W F	T505	1-424-220-23	TRANSFORMER, LINE FILTER	
R628	1-249-377-11	CARBON	0.47 5% 1/4W F	T603			
R629	1-249-388-11	CARBON	3.9 5% 1/4W F	T603	1-423-583-11	TRANSFORMER, CONVERTER DRIVE	
R630	1-215-857-11	METAL OXIDE	10 5% 1W F	T604	1-423-615-11	TRANSFORMER, CONVERTER (PMT)	
R632	1-249-417-11	CARBON	1K 5% 1/4W F	T605	1-423-582-11	TRANSFORMER, FERRITE (SBT)	
R633	1-249-405-11	CARBON	100 5% 1/4W F				
R635	1-249-413-11	CARBON	470 5% 1/4W F				
R636	1-249-383-11	CARBON	1.5 5% 1/4W F				
R637	1-249-421-11	CARBON	2.2K 5% 1/4W				
R638	1-249-423-11	CARBON	3.3K 5% 1/4W				
R639	1-249-423-11	CARBON	3.3K 5% 1/4W				

**D H UA**

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REF. NO. PART NO. DESCRIPTION

REF. NO. PART NO. DESCRIPTION

**<THERMISTOR>**

REF601A1-803-539-11 THERMISTOR, POSITIONER

**<VARISTOR>**

VDR601 1-807-288-11 VARISTOR  
VDR602 1-810-053-21 VARISTOR  
VDR603 1-810-053-21 VARISTOR

\*\*\*\*\*  
\*1-646-717-11 H BOARD  
\*\*\*\*\*

**<CAPACITOR>**

C1001 1-124-916-11 ELECT 22MF 20% 25V  
C1002 1-124-903-11 ELECT 1MF 20% 50V  
C1003 1-124-903-11 ELECT 1MF 20% 50V  
C1004 1-124-122-11 ELECT 100MF 20% 50V

**<CONNECTOR>**

CN154 \*1-564-520-11 PLUG, CONNECTOR 5P  
CN155 \*1-564-523-11 PLUG, CONNECTOR 8P

**<DIODE>**

D1004 1-810-039-11 LED UNIT

**<IC>**

IC1001 8-746-185-11 IC SBX1618-59

**<JACK>**

J1001 1-695-585-11 JACK BLOCK, PIN (L TYPE) 3P

**<RESISTOR>**

R1001 1-247-804-11 CARBON 75 5% 1/4W  
R1002 1-249-425-11 CARBON 4.7K 5% 1/4W  
R1003 1-216-113-00 METAL GLAZE 470K 5% 1/10W  
R1004 1-249-425-11 CARBON 4.7K 5% 1/4W  
R1005 1-216-113-00 METAL GLAZE 470K 5% 1/10W  
R1007 1-216-073-00 METAL GLAZE 10K 5% 1/10W  
R1008 1-216-025-00 METAL GLAZE 100 5% 1/10W  
R1009 1-216-065-00 METAL GLAZE 4.7K 5% 1/10W  
R1010 1-216-055-00 METAL GLAZE 1.8K 5% 1/10W  
R1011 1-216-025-00 METAL GLAZE 100 5% 1/10W  
R1012 1-216-049-00 METAL GLAZE 1K 5% 1/10W  
R1013 1-216-033-00 METAL GLAZE 220 5% 1/10W  
R1014 1-216-047-00 METAL GLAZE 820 5% 1/10W  
R1015 1-216-033-00 METAL GLAZE 220 5% 1/10W

**<SWITCH>**

S1001 1-571-532-21 SWITCH, TACTIL  
S1002 1-571-532-21 SWITCH, TACTIL  
S1003 1-571-532-21 SWITCH, TACTIL  
S1004 1-571-532-21 SWITCH, TACTIL  
S1005 1-571-532-21 SWITCH, TACTIL

S1006 1-571-532-21 SWITCH, TACTIL  
S1007 1-571-532-21 SWITCH, TACTIL

**<CAPACITOR>**

\*\*\*\*\*  
\*A-1394-418-A UA BOARD, COMPLETE  
\*\*\*\*\*

C401 1-163-031-11 CERAMIC CHIP 0.01MF 20% 50V  
C402 1-124-916-11 ELECT 22MF 20% 25V  
C405 1-124-916-11 ELECT 22MF 20% 25V  
C406 1-124-903-11 ELECT 1MF 20% 50V  
C407 1-124-903-11 ELECT 1MF 20% 50V  
C408 1-124-916-11 ELECT 22MF 20% 25V  
C409 1-124-903-11 ELECT 1MF 20% 50V  
C410 1-124-903-11 ELECT 1MF 20% 50V  
C412 1-124-916-11 ELECT 22MF 20% 25V  
C413 1-124-907-11 ELECT 10MF 20% 50V  
C414 1-124-499-11 ELECT 1MF 20% 50V  
C415 1-124-499-11 ELECT 1MF 20% 50V  
C416 1-124-907-11 ELECT 10MF 20% 50V  
C417 1-124-902-00 ELECT 0.47MF 20% 50V  
C418 1-124-902-00 ELECT 0.47MF 20% 50V  
C419 1-124-477-11 ELECT 47MF 20% 16V  
C420 1-163-031-11 CERAMIC CHIP 0.01MF 20% 50V  
C421 1-124-916-11 ELECT 22MF 20% 25V  
C433 1-124-482-11 ELECT 33MF 20% 25V  
C434 1-163-117-00 CERAMIC CHIP 100PF 5% 50V  
C440 1-124-907-11 ELECT 10MF 20% 50V  
C441 1-124-477-11 ELECT 47MF 20% 16V  
C442 1-163-117-00 CERAMIC CHIP 100PF 5% 50V  
C462 1-126-101-11 ELECT 100MF 20% 16V

**<FILTER BLOCK>**

CM402 1-466-912-21 FILTER BLOCK, COMB

**<CONNECTOR>**

CN141 \*1-564-520-11 PLUG, CONNECTOR 5P  
CN143 1-750-395-11 SOCKET, CONNECTOR 32P  
CN146 1-573-300-11 CONNECTOR, BOARD TO BOARD 18P  
CN147 1-750-395-11 SOCKET, CONNECTOR 32P  
CN148 \*1-564-517-11 PLUG, CONNECTOR 2P

**<DIODE>**

D401 8-719-110-17 DIODE RD10ESB2  
D402 8-719-110-17 DIODE RD10ESB2  
D403 8-719-110-17 DIODE RD10ESB2  
D404 8-719-110-17 DIODE RD10ESB2  
D405 8-719-110-17 DIODE RD10ESB2  
D408 8-719-110-17 DIODE RD10ESB2  
D410 8-719-110-17 DIODE RD10ESB2  
D411 8-719-110-17 DIODE RD10ESB2  
D429 8-719-110-17 DIODE RD10ESB2  
D430 8-719-110-17 DIODE RD10ESB2

D431 8-719-110-17 DIODE RD10ESB2  
D436 8-719-110-17 DIODE RD10ESB2  
D437 8-719-110-17 DIODE RD10ESB2

**<IC>**

IC402 8-752-062-86 IC CXA1545AS

The components identified by shading and mark **A** are critical for safety  
Replace only with part number specified

Les composants identifiés par une trame et une marque **A** sont critiques pour la sécurité  
Ne les remplacer que par une pièce portant le numéro spécifié

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
<b>&lt;JACK&gt;</b>							
J401	1-750-515-11	TERMINAL BLOCK, S 3P		R435	1-216-295-00	METAL GLAZE	0 5% 1/10W
J402	1-750-517-11	JACK BLOCK, PIN 3P		R439	1-216-049-00	METAL GLAZE	1K 5% 1/10W
J403	1-750-545-11	JACK BLOCK, PIN 3P		R441	1-216-049-00	METAL GLAZE	1K 5% 1/10W
J404	1-750-516-11	JACK BLOCK, PIN 2P		R444	1-216-095-00	METAL GLAZE	82K 5% 1/10W
				R445	1-216-073-00	METAL GLAZE	10K 5% 1/10W
				R446	1-216-073-00	METAL GLAZE	10K 5% 1/10W
				R450	1-216-643-11	METAL CHIP	470 0.50% 1/10W
				R451	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
<b>&lt;JUMPER RESISTOR&gt;</b>							
JR402	1-216-295-00	METAL GLAZE	0 5% 1/10W	R453	1-216-645-11	METAL CHIP	560 0.50% 1/10W
JR403	1-216-295-00	METAL GLAZE	0 5% 1/10W	R454	1-216-295-00	METAL GLAZE	0 5% 1/10W
JR408	1-216-295-00	METAL GLAZE	0 5% 1/10W	R456	1-216-041-00	METAL GLAZE	470 5% 1/10W
JR410	1-216-295-00	METAL GLAZE	0 5% 1/10W	R457	1-216-033-00	METAL GLAZE	220 5% 1/10W
JR411	1-216-295-00	METAL GLAZE	0 5% 1/10W	R458	1-216-033-00	METAL GLAZE	220 5% 1/10W
JR412	1-216-295-00	METAL GLAZE	0 5% 1/10W	R475	1-216-049-00	METAL GLAZE	1K 5% 1/10W
JR415	1-216-295-00	METAL GLAZE	0 5% 1/10W	R478	1-216-041-00	METAL GLAZE	470 5% 1/10W
JR416	1-216-295-00	METAL GLAZE	0 5% 1/10W	R482	1-249-417-11	CARBON	1K 5% 1/4W
JR418	1-216-295-00	METAL GLAZE	0 5% 1/10W	R483	1-249-417-11	CARBON	1K 5% 1/4W
JR419	1-216-295-00	METAL GLAZE	0 5% 1/10W	R1438	1-216-081-00	METAL GLAZE	22K 5% 1/10W
*****							
JR429	1-216-295-00	METAL GLAZE	0 5% 1/10W	MISCELLANEOUS		*****	
JR430	1-216-295-00	METAL GLAZE	0 5% 1/10W	*****		*****	
JR431	1-216-295-00	METAL GLAZE	0 5% 1/10W	*****		*****	
JR434	1-216-295-00	METAL GLAZE	0 5% 1/10W	*****		*****	
JR435	1-216-295-00	METAL GLAZE	0 5% 1/10W	*****		*****	
JR498	1-216-295-00	METAL GLAZE	0 5% 1/10W	*****		*****	
JR499	1-216-295-00	METAL GLAZE	0 5% 1/10W	*****		*****	
<b>&lt;COIL&gt;</b>							
L401	1-410-473-11	INDUCTOR	18UH	1-573-657-11 PLUG, F-PIN		*****	
L403	1-410-476-11	INDUCTOR	33UH	1-751-053-11 CDR3, POWER (WHITE CONNECTOR) (108X125X3)		*****	
L404	1-410-669-31	INDUCTOR	33UH	1-941-989-02 CABLE, DGC (XED)		*****	
<b>&lt;TRANSISTOR&gt;</b>				1-753-633-03 PICTURE TUBE (468K250X)		*****	
Q401	8-729-422-27	TRANSISTOR	2SD601A-Q	*****		*****	
Q405	8-729-422-36	TRANSISTOR	2SB709A-Q	*****		*****	
Q406	8-729-422-36	TRANSISTOR	2SB709A-Q	*****		*****	
Q414	8-729-422-27	TRANSISTOR	2SD601A-Q	*****		*****	
<b>&lt;RESISTOR&gt;</b>							
R401	1-247-804-11	CARBON	75 5% 1/4W	3-756-904-21 MANUAL, INSTRUCTION		*****	
R402	1-216-113-00	METAL GLAZE	470K 5% 1/10W	3-756-904-41 MANUAL, INSTRUCTION		*****	
R403	1-216-113-00	METAL GLAZE	470K 5% 1/10W	*4-039-970-01 INDIVIDUAL CARTON		*****	
R404	1-247-804-11	CARBON	75 5% 1/4W	*4-039-971-01 CUSHION (UPPER) (ASSY)		*****	
R405	1-216-113-00	METAL GLAZE	470K 5% 1/10W	*4-039-972-01 CUSHION (LOWER) (ASSY)		*****	
R406	1-216-113-00	METAL GLAZE	470K 5% 1/10W	*4-396-065-01 BAG, PROTECTION		*****	
R407	1-247-804-11	CARBON	75 5% 1/4W	1-467-072-11 REMOTE COMMANDER (RM-Y119)		*****	
R408	1-216-113-00	METAL GLAZE	470K 5% 1/10W	9-904-195-01 COVER, BATTERY (RM-Y119)		*****	
R409	1-216-113-00	METAL GLAZE	470K 5% 1/10W	*****		*****	
R410	1-249-425-11	CARBON	4.7K 5% 1/4W	*****		*****	
R411	1-249-425-11	CARBON	4.7K 5% 1/4W	*****		*****	
R412	1-249-425-11	CARBON	4.7K 5% 1/4W	*****		*****	
R413	1-249-425-11	CARBON	4.7K 5% 1/4W	*****		*****	
R414	1-247-804-11	CARBON	75 5% 1/4W	*****		*****	
R415	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	*****		*****	
R416	1-216-647-11	METAL CHIP	680 0.50% 1/10W	*****		*****	
R417	1-216-645-11	METAL CHIP	560 0.50% 1/10W	*****		*****	
R421	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	*****		*****	
R425	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	*****		*****	
R431	1-216-049-00	METAL GLAZE	1K 5% 1/10W	*****		*****	
R432	1-216-295-00	METAL GLAZE	0 5% 1/10W	*****		*****	
R434	1-216-049-00	METAL GLAZE	1K 5% 1/10W	*****		*****	

